2014

2014 Student Research and Creative Works Symposium Program

Eastern Washington University

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Tell me and I forget, teach me and I may remember, involve me and I learn.

~ Benjamin Franklin
Coming to EWU!

Prepare to Take Flight!
APRIL 16-18, 2015

Eastern Washington University is honored to host students and faculty from more than 450 institutions of higher learning, as they participate in the 29th Annual National Conferences on Undergraduate Research (NCUR) in April 2015. NCUR is the largest interdisciplinary undergraduate research conference in the country.

The mission of the National Conference on Undergraduate Research (NCUR) is to promote undergraduate research, scholarship and creative activity done in partnership with faculty or other mentors as a vital component of higher education.

Attendees will present their research and creative works in oral and poster presentations, as well as performance and visual arts. From art to zoology, there is something for everyone. Over 3250 student will participate and more than 500 faculty and administrator advisors will attend.

Ask about opportunities to volunteer!
Students, Faculty and Staff!

Check us out on Facebook and follow us on Twitter.

For questions contact:
Chris Robbins or Lindsey Porter
509.359.4548 or 509.359.6826
Email us: NCUR2015@ewu.edu
Website: http://www.cur.org/ncur_2015/
Thank you for your support of the 2014 EWU Student Research & Creative Works Symposium

Eastern Washington University
EWU Offices of the Provost
Graduate Education Research
Undergraduate Studies
Grant & Research Development
McNair Scholars
Spokane Teachers Credit Union
National Conference on Undergraduate Research
Eastern Washington University is honored to host students and faculty from more than 450 institutions of higher learning, as they participate in the 29th Annual National Conferences on Undergraduate Research (NCUR) in April 2015. NCUR is the largest interdisciplinary undergraduate research conference in the country.

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Website: http://www.cur.org/ncur_2015/
Eastern Washington University

17th Annual Student Research & Creative Works Symposium

Day One
Tuesday, May 13, 2014
4:30 p.m. – 8:00 p.m.

Fine Arts Complex

4:30 p.m. Welcome from President Rodolfo Arevalo and Dr. Jim Perez, dean of the College of Arts, Letters & Education

Presenter Check-In Begins
Art Building, Lobby and Entrance

4:30 – 7:30 p.m. Appetizers and Refreshments
Art Building, Lobby

4:30 – 8:00 p.m. Art Exhibits
Art Building, Gallery and Lobby

5:20 – 6:00 p.m. Music Composition Presentations
Art Building, Gallery

6:00 – 7:00 p.m. Creative Writing Presentations
Art Building, Auditorium Room 116

6:00 – 7:30 p.m. Film Presentations
Radio-Television (RTV) Building, Room 123

6:00 – 7:00 p.m. Theatre Presentations
University Theatre

7:00 p.m. Theatre Open Rehearsal: “A View From the Bridge”
University Theatre
Eastern Washington University  
17th Annual Student Research & Creative Works Symposium

Day Two  
Wednesday, May 14, 2014  
8:00 a.m. – 5:00 p.m.

Senior Hall and Hargreaves Hall

7:30 a.m.  
Presenter Check-In Begins  
Senior Hall Entrance

8:00 a.m. – 3:00 p.m.  
Information Tables: EWU Library, Graduate Studies, McNair Scholar Program, NCUR, Service Learning, STCU, Northwest Boulevard, The Easterner  
Senior Hall Lobby

8:00 a.m. – 12:00 p.m.  
Morning Oral Presentations  
Senior Hall, Rooms: 101, 124, 201, 203, 204, 221, 243, 302, 304, 306

8:30 a.m. – 12:00 p.m.  
Morning Poster and Interactive Presentations  
Hargreaves Hall Reading Room

Luncheon, Pence Union Building (PUB), MPR

12:00 – 1:30 p.m.  
Opening Remarks from Dr. Chuck Lopez, Vice Provost, Undergraduate Studies and Student Success

Introduction by Dr. Jim Perez, dean of the College of Arts, Letters & Education

Keynote Address “Thrill-Seeking Explorer vs. Science Nerd: How to use your research skills as the springboard to experience thrill, excitement, and satisfaction in your career” by Dr. Jon Hammermeister from the Department of Physical Education, Health & Recreation

Senior Hall and Hargreaves Hall

1:30 – 5:00 p.m.  
Afternoon Oral Presentations  
Senior Hall, Rooms: 101, 124, 201, 203, 204, 221, 243, 302, 304, 306

1:30 – 5:00 p.m.  
Afternoon Poster and Interactive Presentations  
Hargreaves Hall Reading Room
2014 Inspirational Quote

Tell me and I forget,
teach me and I may remember,
involveme and I learn.

~Benjamin Franklin

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 as a vital component of higher education. This year the Symposium Planning Committee chose the quote above by Benjamin Franklin to exemplify this mission.

Benjamin Franklin, born January 17, 1706, was the tenth son of a soap maker. Franklin’s father’s aspiration was for him to become clergy man, but he could not afford his schooling. As a result of his family’s economic hardship, Franklin was pulled out of school at a young age. Although he was not a student, he continued his education through reading.

Franklin, one of the Founding Fathers of the United States, was also an inventor. We can thank him for bifocals, electricity, the lighting rod, and many other discoveries. He also helped draft the U.S Constitution and the Declaration of Independence. Not only was Franklin a political leader and inventor, but he also valued community engagement. He created a group called The Junto Club. This club consisted of community members who searched for ways to improve society; showing Franklin’s value on improving humanity.

Contributions made by Franklin ensure that his legacy live on forever. He is remembered today by his image on the $100 bill, schools, libraries, and streets named after him, as well as through many other representations. Franklin’s hard work and dedication makes him a prominent historical figure whose values we continue to practice today.
Symposium Sponsors

EWU Office of the Provost – Undergraduate Studies – Spokane Teachers Credit Union
Graduate Studies – McNair Scholars Program – Grants & Research Development

Special thanks to:

President Rodolfo Arevalo – Provost Rex Fuller
Vice Provost Charles Lopez – Dr. Jon Hammermeister
Dean Jim Perez – Christopher Robbins

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Spokane Teachers Credit Union
for their generous donation and continued support

And to all the students, mentors, faculty and 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 115 Showalter Hall.

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

The mission of the EWU Student Research & Creative Works Symposium is to promote student research, scholarship, and creative activity done in partnership with faculty as a vital component of high education. Student, faculty, and administrators are invited to hear and discuss undergraduate and graduate creative and scholarly work.

2014 Symposium Committee Members

Molly Ayers, Director, Office of Community Engagement
Helen Bergland, Faculty Support & Student Learning Assessment Coordinator, Undergraduate Studies
Cassie Bratton, ASEWU Academic Affairs Representative
Melinda Breen, Associate Professor, Visual Communication Design, Engineering
Reanne Charuhas, Office of Community Engagement
Sarah Cornwell, Assistant Symposium Coordinator, Symposium Office
Kelley Cullen, Assistant Professor, Economics
Cynthia Dukich, Counselor/ Academic Coordinator, McNair Scholars Program
Greg duMonthier, Assistant professor, Art
David Early, Director of Recreation Facilities
Anthony Flinn, Professor, English
Gail Forsgreen, Assistant Director, EWU Writers’ Center
Ruth Galm, Executive Director, Office of Grant & Research Development
Christina Torres García, Director, McNair Scholars Program
Sara Goff, Associate Professor, Theatre
N.M. Awlad Hossain, Assistant Professor, Engineering & Design
Sarah Keller, Professor, Anthropology
Charles Lopez, Vice Provost, Undergraduate Studies and Student Success
Travis Masingale, Assistant Professor, Visual Communication Design
Jonathan Middleton, Professor, Music
Suzanne Milton, Dean of Libraries, Reference & Instruction
Colin Ormsby, Vice Provost, Graduate Education, Research, Academic Planning & Education
Justin Otto, Social Sciences Librarian, Faculty Chair
Kristina Pfleegor, Interim Assistant Director, EWU Writers’ Center
Lindsey Porter, Symposium Coordinator, Symposium Office
Pete Porter, Associate Professor, Film
Christopher Robbins, Project Manager NCUR 2015, Undergraduate Studies and Student Success
Julia Smith, Assistant Professor, Anthropology
The TRiO Ronald E. McNair
Post-baccalaureate Achievement Programs

As one of eight federally-funded TRiO outreach and student services programs, the goal of the TRiO Ronald E. McNair Post-baccalaureate Program is to increase the attainment of PhD degrees by students from underrepresented segments of society.

Funded by Congress through a grant from the U.S. Department of Education, TRiO McNair programs prepare eligible participants for successful doctoral studies by providing opportunities for research or other scholarly activities; summer internships; seminars and other educational activities designed for doctoral preparation; tutoring; academic counseling; and activities designed to assist participants in securing admission to and financial assistance for doctoral enrollment. Since 1995, fourteen EWU McNair Scholars have earned doctorates, ninety-three have earned master’s degrees and eighty-eight are currently enrolled in graduate school.

Eastern’s TRiO McNair program first received funding in 1995, with the program’s faculty-mentored research internship a key component to its ongoing success. Each year up to fifteen selected McNair research interns conduct eight-week summer research projects under the guidance of faculty in their disciplines.

Research interns must produce a scholarly research paper and present their findings at a conference. This 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 (currently working with the National Science Foundation).
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 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. This year the 16th Annual Student Research & Creative Works Symposium will be the largest symposium to date. Coordinated by graduate assistant Nikki Graham-Brown under Dr. Ron Dalla in Graduate Education, Research, Academic Planning and Evaluation, the event will include 500 presenters, among them the following McNair Scholars, listed with their dedicated faculty research mentors:

**McNair Scholars: 2014 Research Interns and Faculty Mentors:**
- Samantha De Abreu (Chemistry): Dr. Jamie Manson
- Grace Cooper (Anthropology): Dr. Joshua Bell (Smithsonian National Museum)
- Christopher Durall (Psychology): Dr. Theresa Martin
- Jennifer Graham (Biology): Dr. Luis Matos
- SimHaykin Jack (Race and Culture): Dr. Martín Meraz García
- Michelle Keller (Biology): Dr. Suzanne Schwab
- Tabria Lee-Noonan (Anthropology): Dr. Kawkab Shishani (WSU)
- Jose Mendez (Criminal Justice and Sociology): Dr. Karryn Bell
- Virginia Morales (International Relations): Dr. Majid Sharifi
- Nancy Muñoz (Women’s and Gender Studies and Sociology): Dr. Jessica Willis
- Ashley Niehuis (Psychology): Dr. William Williams
- Any Nuñez (Education): Dr. Martín Meraz García
- Melissa Rhodhouse (Chemistry and Biochemistry): Dr. Shankar Subramaniam (UC San Diego)
- Aleksandr Pikalov (Chemistry): Dr. Wes Steiner
- Leah Ruiz (Psychology): Dr. Jonathan Anderson

We would also like to welcome the new McNair Scholars!

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Da’mony Anderson</td>
<td>Business</td>
</tr>
<tr>
<td>Devon Asmus</td>
<td>Anthropology</td>
</tr>
<tr>
<td>Kimberly Cook</td>
<td>Biology</td>
</tr>
<tr>
<td>Lisa Coyle</td>
<td>Psychology</td>
</tr>
<tr>
<td>Mariana Garcia</td>
<td>International Relations</td>
</tr>
<tr>
<td>Ayanna Jacobs Kalyan</td>
<td>Psychology &amp; Children</td>
</tr>
<tr>
<td>Erik Jimenez</td>
<td>Psychology</td>
</tr>
<tr>
<td>Mikaila Leyva</td>
<td>International Relations</td>
</tr>
<tr>
<td>Jereny Mendoza</td>
<td>Philosophy &amp; Government</td>
</tr>
<tr>
<td>Jessica Ochoa</td>
<td>Anthropology</td>
</tr>
<tr>
<td>Yuri Reyes</td>
<td>Biology</td>
</tr>
<tr>
<td>Le’Naecha Roberts</td>
<td>Communication</td>
</tr>
<tr>
<td>Kelsey Rosales</td>
<td>Computer Engineer</td>
</tr>
<tr>
<td>Moses Ssemakula</td>
<td>Sociology</td>
</tr>
<tr>
<td>Laura Zamudio</td>
<td>Math Education</td>
</tr>
</tbody>
</table>
Information Tables

National Conference of Undergraduate Research (NCUR)

TRiO McNair Scholars Program

Graduate Studies
Students considering advanced study beyond the bachelor’s degree will find information about more than 50 graduate programs offered at EWU, the application process, tuition and financial aid, contacts and deadlines, along with applications for admission. The friendly, professional staff members in the Graduate Studies Office are available to answer questions weekdays from 8 a.m. to 5 p.m. in 206 Showalter Hall, or by phone at 359-6297.

Office of Community Engagement
EWU’s Office of Community Engagement (OCE) connects the university to the wider community through meaningful partnerships in order to enrich student learning, address critical community needs, and foster a culture of civic responsibility and community. Learn more about community engagement and service-learning at EWU and the ways in which the OCE supports students and faculty in this work.

Libraries
Come and learn how to optimize your research time. Library student employees will be available to discuss the types of services and resources the library has to offer students. Learn how to get research assistance from a librarian (in-person, via email or chat). Find out how you can use RefWorks to help manage citations when writing a paper. There will also be information on upcoming library events.

Northwest Boulevard
Northwest Boulevard is a nonprofit literary journal run and distributed by the undergraduates of Eastern Washington University. We publish original poetry, prose, and visual art from undergraduates and graduates of EWU. If you would like to join the staff or want more information please email nwblitmag@gmail.com.

The Easterner
The Easterner, the student news organization at EWU, has existed in one form or another since 1916. Not only is it a source of student-oriented content, but it is also a platform for free speech, where students and the surrounding community can debate topics and share in the marketplace of ideas. At The Easterner’s table, participants will find recent issues, information about advertising, and staff that can take your story ideas and answer questions.

Spokane Teacher Credit Union (STCU)
STCU is a not-for-profit financial cooperative with more than 120,000 members and 17 branch locations, including one in Cheney. Founded by educators in 1934, the credit union honors its roots by supporting primary, secondary and post-secondary education. The link is especially strong between STCU and Eastern Washington University, the alma matter for about 15 percent of credit union employees. STCU was named the 2012 EWU Organization of Excellence, and is honored to support the EWU Creative Works Symposium.
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Keynote Speaker

Pence Union Building (PUB), MPR
12:00 p.m. – 1:30 p.m.

Jon Hammermeister, PhD
Department of Physical Education, Health and Recreation

Thrill-Seeking Explorer vs. Science Nerd:
How to use your research skills as the springboard to experience thrill, excitement, and satisfaction in your career

This presentation will focus on three themes which should resonate with all researchers - two of which are threatening to most of us (i.e., living a boring life and being labeled a “nerd”) and another which captivates most of us (i.e., the desire for excitement). In this presentation we will explore how geek-like researchers such as myself can leverage their “dull and boring” scientific skill set to build a life that can be engaging, rewarding, imaginative, and which may actually make the world a slightly better place for everyone else

Biography

Dr. Hammermeister is a Professor in the Department of PEHR where he teaches sport, exercise, health psychology, and research-related courses. Over the past 20 years he has generated many scholarly works in the areas of performance psychology, psychosocial health, and psychological resilience.

Beyond his work at EWU, Jon has acted as a senior research consultant for the U.S. Army’s Center for Enhanced Performance (ACEP) and the Comprehensive Soldier Fitness Performance and Resilience Enhancement Program (CSF-PREP). He has also acted as an applied sport psychology consultant to the United States Ski Team and has served as a staff member at 3 Olympic Games – 2002 in Salt Lake City, 2006 in Torino Italy, and 2010 in Vancouver Canada.

Jon also works with the Pittsburgh Pirates professional baseball club as a consultant in charge of coordinating the Pirates personal and professional development programs.
Creative Works Presentation Schedule

Tuesday, May 13, 2014
4:30 p.m. – 8:00 p.m.
Fine Arts Complex

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:30 – 8:00 p.m.</td>
<td>Session 1: Art Exhibits*</td>
<td>Art Building: Gallery and Lobby</td>
</tr>
<tr>
<td>5:20 – 5:55 p.m.</td>
<td>Session 2: Music Composition</td>
<td>Art Building: Gallery</td>
</tr>
<tr>
<td>6:00 – 7:30 p.m.</td>
<td>Session 3: Film</td>
<td>Radio-Television (RTV) Building: Room 123</td>
</tr>
<tr>
<td>6:00 – 7:00 p.m.</td>
<td>Session 4: Creative Writing</td>
<td>Art Building: Auditorium Room 116</td>
</tr>
<tr>
<td>6:00 – 7:00 p.m.</td>
<td>Session 5: Theatre</td>
<td>University Theatre: Stage</td>
</tr>
<tr>
<td>7:00 p.m. – close</td>
<td>Open Rehearsal for Arthur Miller’s</td>
<td>A View from the Bridge</td>
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</tbody>
</table>

*Symposium Art Exhibits will remain on display in the Art Building Gallery and Lobby throughout the day on Wednesday, May 14, 2014.
Fine Arts Complex
Map

THEATRE BUILDING
ART BUILDING
COMMUNICATIONS BUILDING
MUSIC BUILDING
RTV BUILDING

ENTRANCE TO LOBBY
FOR WELCOME AND REGISTRATION
Creative Works Session 1: Art Visual Communications Design  
Art Building Gallery, 4:30 p.m.—8:00 p.m.

<table>
<thead>
<tr>
<th>Time</th>
<th>Artist</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:30</td>
<td>Melissa Carpenter</td>
<td>Untitled</td>
<td>Chris Tyllia</td>
</tr>
<tr>
<td></td>
<td>Caitlin Clawson</td>
<td><em>Perry Moppins</em></td>
<td>Tom Askman</td>
</tr>
<tr>
<td></td>
<td>Jennifer DeBarros</td>
<td><em>Tossed and Found</em></td>
<td>Jenny Hyde</td>
</tr>
<tr>
<td></td>
<td>Jessica Earle</td>
<td><em>Lucid Dream</em></td>
<td>Jenny Hyde</td>
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<tr>
<td></td>
<td>Greg Haste</td>
<td><em>The Institution for Subtle Learning</em></td>
<td>Jenny Hyde</td>
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<tr>
<td></td>
<td>Derrick Jackson</td>
<td><em>Transitory</em></td>
<td>Jenny Patterson</td>
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<tr>
<td></td>
<td>Hattie Johnson</td>
<td><em>Confined</em></td>
<td>Jamie Hahn</td>
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<tr>
<td></td>
<td>Sonia Mededovic</td>
<td><em>Reach</em></td>
<td>Jamie Hahn</td>
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<tr>
<td></td>
<td>Nichole Nevenhoven</td>
<td><em>Dipsomania</em></td>
<td>Jenny Hyde</td>
</tr>
<tr>
<td>4:30</td>
<td>Polina Nikolayev</td>
<td>Untitled</td>
<td>Greg duMonthier</td>
</tr>
<tr>
<td>8:00</td>
<td>Christopher Steele</td>
<td><em>The Journey to Conceptual</em></td>
<td>Chris Tyllia</td>
</tr>
<tr>
<td></td>
<td>Kathryn Taylor</td>
<td><em>Skeletons</em></td>
<td>Jenny Hyde</td>
</tr>
<tr>
<td>8:00</td>
<td>Christina Torrieri</td>
<td><em>Hijab Wall</em></td>
<td>Chris Tyllia</td>
</tr>
<tr>
<td></td>
<td>Amy Uekert</td>
<td>Untitled</td>
<td>Greg duMonthier</td>
</tr>
<tr>
<td></td>
<td>Joshua Wilson</td>
<td><em>Awareness</em></td>
<td>Jenny Hyde</td>
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<tr>
<td></td>
<td>Barbara Wilson</td>
<td>Untitled</td>
<td>Chris Tyllia</td>
</tr>
<tr>
<td></td>
<td>Justine Beschta</td>
<td><em>Pass the Torch</em></td>
<td>Travis Masingale</td>
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<tr>
<td></td>
<td>Lauren Campbell</td>
<td><em>Red Dot</em></td>
<td>Roger Ralston</td>
</tr>
<tr>
<td></td>
<td>Marina Gulova</td>
<td><em>Watercolor #38</em></td>
<td>Kate Peterson</td>
</tr>
<tr>
<td></td>
<td>Joseph Snodgrass</td>
<td><em>The Education of the Modern World</em></td>
<td>Mindy Breen</td>
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</tbody>
</table>
### Creative Works Session 2: Music Composition
Art Building Gallery, 5:20 p.m.—5:55 p.m.

<table>
<thead>
<tr>
<th>Time</th>
<th>Composer</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:20</td>
<td>Montgomery Boldt</td>
<td><em>Grayback Mountain: Movement II</em></td>
<td>Jonathan Middleton</td>
</tr>
<tr>
<td>5:20</td>
<td>Jake Cunningham</td>
<td><em>Ambition</em></td>
<td>Jonathan Middleton</td>
</tr>
<tr>
<td>to</td>
<td>Tyler Dines</td>
<td><em>Guitar Quartet No. 3</em></td>
<td>Jonathan Middleton</td>
</tr>
<tr>
<td>5:55</td>
<td>Margaret Francik</td>
<td><em>Chant</em></td>
<td>Jonathan Middleton</td>
</tr>
<tr>
<td></td>
<td>Douglas Gade</td>
<td><em>Piano Sonata No. 1</em></td>
<td>Jonathan Middleton</td>
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<tr>
<td></td>
<td>Scot Hebert</td>
<td><em>Rainforest Fugue</em></td>
<td>Jonathan Middleton</td>
</tr>
<tr>
<td></td>
<td>Thomas Sanborn, Austin Taylor</td>
<td><em>Invidia</em></td>
<td>Jonathan Middleton</td>
</tr>
</tbody>
</table>

### Creative Works Session 3: Film
RTV Building, Room 123, 6:00—6:35 and 7:00—7:30 p.m.

<table>
<thead>
<tr>
<th>Time</th>
<th>Filmmaker</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00</td>
<td>Kyle Beckwith</td>
<td><em>The Thin Man</em></td>
<td>Adam Boyd</td>
</tr>
<tr>
<td>to</td>
<td>Tyler Clark, Chris Mudd, Aaron Shell, Phil Peckels, Sean McNeil</td>
<td><em>The Last Testament of Matt Daver</em></td>
<td>Adam Boyd</td>
</tr>
<tr>
<td>7:30</td>
<td>Jake Sanders</td>
<td><em>Dust</em></td>
<td>Adam Boyd</td>
</tr>
<tr>
<td></td>
<td>Bryce Thomson</td>
<td><em>First Times</em></td>
<td>Pete Porter</td>
</tr>
<tr>
<td></td>
<td>Kendra Ann Sherrill</td>
<td><em>Serenade</em></td>
<td>Adam Boyd</td>
</tr>
</tbody>
</table>
## Creative Works Session 4: Creative Writing

**Art Auditorium (Art 116), 6:00 p.m.—7:00 p.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00</td>
<td>Virginia Thomas</td>
<td>“Cheatgrass”</td>
<td>Cynthia Schoch</td>
</tr>
<tr>
<td>6:15</td>
<td>Kate Daniel</td>
<td><em>Northwest Boulevard</em>: “Memories” and “Before I Go”</td>
<td>Kate Peterson</td>
</tr>
<tr>
<td>6:25</td>
<td>Melissa Dziedzic</td>
<td><em>Northwest Boulevard</em>: A Reading of Selected Works</td>
<td>Kate Peterson</td>
</tr>
<tr>
<td>6:40</td>
<td>Paul Lee</td>
<td>Selections from Tomas Tranströmer Influenced Poems and the Lost Mariner Poems</td>
<td>Christopher Howell</td>
</tr>
<tr>
<td>6:50</td>
<td>Kate Peterson</td>
<td>“Grist: Poetry”</td>
<td>Rachel Toor</td>
</tr>
</tbody>
</table>

## Creative Works Session 5: Theatre

**University Theatre Stage, 6:00 p.m.—7:00 p.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00</td>
<td>Cody Bray</td>
<td>Scenic Painting</td>
<td>Shana Joslyn</td>
</tr>
<tr>
<td>6:00</td>
<td>Christine Buckley</td>
<td>Imitation Foliage at 20 Feet</td>
<td>Shana Joslyn</td>
</tr>
<tr>
<td></td>
<td>Christopher Hansen</td>
<td><em>The Faces of Villainy</em></td>
<td>Shana Joslyn, Sara Goff</td>
</tr>
<tr>
<td>6:00</td>
<td>Cody Bray</td>
<td>NWCD Musical Theatre Package</td>
<td>Sara Goff, Shana Joslyn</td>
</tr>
<tr>
<td>6:00</td>
<td>Michelle Pyles, Aaron Taylor, Talia Jardin-Fermantez</td>
<td><em>King Henry VI Part III</em></td>
<td>Sara Goff</td>
</tr>
<tr>
<td>6:00</td>
<td>David Logghe, Hailey Gilbert</td>
<td>KCACFT Package</td>
<td>Sara Goff, Jeffrey Sanders</td>
</tr>
<tr>
<td>6:00</td>
<td>Brianna Williamson, Michelle Huston</td>
<td><em>Othello</em></td>
<td>Jeffrey Sanders, Sara Goff</td>
</tr>
<tr>
<td>6:00</td>
<td>Martin Sanks, Cody Bray, Carolyn Jess</td>
<td><em>Pretty Sweet Day</em></td>
<td>Sara Goff</td>
</tr>
</tbody>
</table>
| 7:00   | Open Rehearsal for Arthur Miller’s *A View from the Bridge*, EWU Theatre’s Spring Quarter Production | Student Cast: Nicole Meyer (Catherine), David Logghue (Alfieri), Cody Bray (Rodolfo), Chris Hansen (Marco)  
  Guest Director: Brad Deli, Iowa State University  
  Guest Performance: Sara Goff (Beatrice Carbone), Jeff Sanders (Eddie Carbone) | Sara Goff |
Oral, Interactive, & Poster Research Presentation Schedule

Wednesday, May 14, 2014
8:00 a.m. – 5:00 p.m.
Senior Hall and Hargreaves Hall

8:00 a.m. – 12:00 p.m.  Morning Oral Sessions: 1-13
SENIOR HALL: Rooms 101, 124, 201, 203, 204, 221, 243, 302, 304, and 306

8:30 a.m. – 10:00 a.m.  Morning Poster Sessions: 1
HARGREAVES HALL: Reading Room

10:30 a.m. – 12:00 p.m.  Morning Poster Session: 2
Morning Interactive Session: 1
HARGREAVES HALL: Reading Room

12:00 p.m. – 1:30 p.m.  Event Luncheon
Pence Union Building (PUB): Multi-Purpose Room

Keynote Address “Thrill-Seeking Explorer vs. Science Nerd: How to use your research skills as the springboard to experience thrill, excitement, and satisfaction in your career” by Dr. Jon Hammermeister from the Department of Physical Education, Health & Recreation

1:30 p.m. – 5:00 p.m.  Afternoon Oral Sessions: 14-23
SENIOR HALL: Rooms 101, 124, 201, 203, 204, 221, 243, 302, 304, and 306

1:30 p.m. – 3:00 p.m.  Afternoon Poster Session: 3
Afternoon Interactive Session: 2
HARGREAVES HALL: Reading Room

3:30 p.m. – 5:00 p.m.  Afternoon Poster Session 4
HARGREAVES HALL: Reading Room
# Oral Session 1: Psychology I

**Room 101, 8:00 a.m.—12:00 p.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Savannah Tarr, Cara Reidy, Martin Sanks, Chad Creighton, Charlie Duranona, David Mitchell</td>
<td>Girls Gone Wild and Other Forms of Contemporary Sexual Expression</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>8:20</td>
<td>Savanna Tarr, Darian Andrew</td>
<td>I’m Not All That: Feeling Like an Imposter in Dating Relationships</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>8:40</td>
<td>Cara Reidy, Katrina Daniels, Allie Groves</td>
<td>Strategies in Determining Sexual Orientation in Potential Dating Relationships</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>9:00</td>
<td>Katrina Daniels, Laura Ertz, Allie Groves, Jason McAllister, Darian Andrew</td>
<td>Friends with Benefits: Studies 4 and 5</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>9:20</td>
<td>Katrina Daniels, Allie Groves, Laura Ertz, Trent Leach</td>
<td>Satisfaction in Intimate Relationships</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>9:40</td>
<td>Collin Keating, Amanda Nikkola, Brandon Pellett, Cort Walker</td>
<td>Relationship Between Parental Upbringing Experience and Current or Ideal Relationship</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>10:00</td>
<td><strong>Break</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:20</td>
<td>Phaedra Castro-Valdovinos, Yesenia Lazaro, Rachell Stenson, Angela Rak, Andrew Baldwin</td>
<td>Sexual Orientation and Education Environments: Difference Between High School and College</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>10:40</td>
<td>Tyler Richter, Kelsey Baycroft, Sarah Boyd, Chelsea May</td>
<td>Levels of Academic, Environmental, Intrapersonal, Interpersonal, Immediate and Anticipatory Stress Between Majors</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>11:00</td>
<td>Kalene Lynch, Heather Youngs, Rebecca Fullerton, Martin Sanks</td>
<td>The Relationship Between social Comparison on Facebook and the Levels of Social Anxiety, Self-Esteem, and General Social Comparison in College Students</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>11:20</td>
<td>Chad Creighton</td>
<td>Self-Consciousness: The Relationship Between Society and the Voices in Your Head</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>11:40</td>
<td>Christin Quinn, Anthony Fleck, Damien Miller, Max Bulmer</td>
<td>Mood and Moral Dilemma</td>
<td>Theresa Martin</td>
</tr>
</tbody>
</table>
## Oral Session 2: Computer Science
### Room 124, 8:00 a.m.—9:20 a.m.

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Andrew Canfield</td>
<td>Mastering mod_rewrite in Mere Minutes</td>
<td>Stu Steiner</td>
</tr>
<tr>
<td>8:20</td>
<td>Richard Rauschke</td>
<td>Introducing a Data Mining-Based Approach to Network Intrusion Detection Systems: accuNIDS.NET</td>
<td>Dan Li Carol Taylor</td>
</tr>
<tr>
<td>8:40</td>
<td>Jason Helms, Adam Bortfeild, Toshiaki Ueno</td>
<td>Video Acceleration via Gate Arrays: A Study in Component Based Development Methods for Computer Engineering</td>
<td>Steven Simmons</td>
</tr>
<tr>
<td>9:00</td>
<td>Charles Byers</td>
<td>Sociology of Software</td>
<td>Todd Hechtman</td>
</tr>
</tbody>
</table>

## Oral Session 3: Engineering and Design
### Room 124, 9:40 a.m.—11:40 a.m.

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>9:40</td>
<td>Samuel Andres</td>
<td>Structural Analysis of Tennis Racquet Using FEA Method</td>
<td>Awlad Hossain</td>
</tr>
<tr>
<td>10:00</td>
<td>Will Richards</td>
<td>ANSYS Bicycle Frame Testing</td>
<td>Awlad Hossain</td>
</tr>
<tr>
<td>10:40</td>
<td>Yoora Byeon</td>
<td>Manufacturing Process of a Quadcopter</td>
<td>Jason Durfee</td>
</tr>
<tr>
<td>11:00</td>
<td>Connor Elder, Garrett Husky, Caleb Mazzola, Chase Schmidt, Jade Panday, Jiaxiang Wang</td>
<td>Tonneaupy</td>
<td>Martin Weiser Awlad Hossain</td>
</tr>
<tr>
<td>11:20</td>
<td>Adam Harris, Tyler Pike, Matt Clarke, Keith Hadley, Cameron Lorenzo, Wes Hango, Yaun Yin</td>
<td>Reconnaissance Hexapod Robot</td>
<td>Martin Weiser Robert Gerlick</td>
</tr>
</tbody>
</table>
# Oral Session 4: Chicano Education I

**Room 201, 8:00 a.m.—12:20 p.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
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</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Rachelle Boyette, Josh Knigge</td>
<td>The Acculturation Process of Chicanos/as in the United States</td>
<td>Martín Meráz García</td>
</tr>
<tr>
<td>8:20</td>
<td>Bailey Webb</td>
<td>Chicano Culture Lost Through Younger Generations in America</td>
<td>Martín Meráz García</td>
</tr>
<tr>
<td>8:40</td>
<td>Josh Knigge, Rachelle Boyette</td>
<td>Chicano/Latin Lifestyle Assimilation in the United States</td>
<td>Martín Meráz García</td>
</tr>
<tr>
<td>9:00</td>
<td>Alba Ibara</td>
<td>The Separation of Immigrants Families in United States</td>
<td>Martín Meráz García</td>
</tr>
<tr>
<td>9:20</td>
<td>Lupita Guzman</td>
<td>Defining Chicano Social Issues and Establishing Self-Identity Through Art</td>
<td>Martín Meráz García</td>
</tr>
<tr>
<td>9:40</td>
<td>Marissa Gomez</td>
<td>Hispanic Identity Crisis in the United States</td>
<td>Martín Meráz García</td>
</tr>
<tr>
<td>10:00</td>
<td></td>
<td><strong>Break</strong></td>
<td></td>
</tr>
<tr>
<td>10:20</td>
<td>Maria Galindo, Berenice García, Joanna Gutierrez</td>
<td>The Obstacles Chicanos Face in the United States</td>
<td>Martín Meráz García</td>
</tr>
<tr>
<td>10:40</td>
<td>Zorrina Crago</td>
<td>Chicano Home Life vs. American Home Life: Do the Cultures Mix?</td>
<td>Martín Meráz García</td>
</tr>
<tr>
<td>11:00</td>
<td>Jessica Silva</td>
<td>The Fallen Promises: The Undocumented Hope of a Better Tomorrow</td>
<td>Martín Meráz García</td>
</tr>
<tr>
<td>11:20</td>
<td>Berenice Garcia</td>
<td>Searching for the American Dream</td>
<td>Martín Meráz García</td>
</tr>
<tr>
<td>11:40</td>
<td>Jolene Luebke</td>
<td>Depression in the Chicano/a Latino Population</td>
<td>Martín Meráz García</td>
</tr>
<tr>
<td>12:00</td>
<td>Minerva Cardenas</td>
<td>Immigration Status Affecting Children’s Cognitive Development</td>
<td>Martín Meráz García</td>
</tr>
<tr>
<td>Time</td>
<td>Author</td>
<td>Title</td>
<td>Mentor</td>
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<tr>
<td>8:40</td>
<td>August Mattson</td>
<td>The Relevance of Biology on Ethical Systems: A Brief Survey</td>
<td>Christopher Kirby</td>
</tr>
<tr>
<td>9:00</td>
<td>David Denenny</td>
<td>A Phenomenology of Our Social World</td>
<td>Kevin Decker</td>
</tr>
<tr>
<td>9:20</td>
<td>Devon Young</td>
<td>David Hume and Arguments for Design</td>
<td>Kevin Decker</td>
</tr>
<tr>
<td>9:40</td>
<td>Vladimir Titkov</td>
<td>Just How Logical is Hegel’s ‘Logic’? – A Metaphysical Interpretation</td>
<td>Kevin Decker</td>
</tr>
<tr>
<td>10:00</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:20</td>
<td>Vladimir Titkov</td>
<td>From Evidentialism, <em>Ex Nihilo Comes: Is Ex Nihilo by “Natural Light”</em> Consistent with the Cartesian Skeptical Method?</td>
<td>Kevin Decker</td>
</tr>
<tr>
<td>10:40</td>
<td>Elliny Hiebert</td>
<td>The Best of All Possible Worlds: A Look into Leibnizian Moral Theory and Contemporary Understandings of Evil</td>
<td>Kevin Decker</td>
</tr>
<tr>
<td>11:00</td>
<td>Sarah O’Hare</td>
<td>“The Dusty Loam”: A Berkeleian Defense of Why Knowledge is Specific</td>
<td>Kevin Decker</td>
</tr>
<tr>
<td>11:20</td>
<td>Gregory Vanwagenen</td>
<td>Nihilism and Affirmation: An Inquiry into Evil</td>
<td>Christopher Kirby</td>
</tr>
<tr>
<td>11:40</td>
<td>Brolin Graham</td>
<td>Introducing Chinese Philosophy Through the Yi Jing</td>
<td>Christopher Kirby</td>
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</tbody>
</table>
## Oral Session 6: Biology
**Room 204, 8:00 a.m.—12:00 noon**

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Jessica Walston</td>
<td>Invasive Brook Stickleback on Turnbull National Wildlife Refuge, Spokane County, Washington</td>
<td>Allan Scholz</td>
</tr>
<tr>
<td>8:20</td>
<td>Jenna Hatem</td>
<td>Diet, Age, and Growth of Brown Trout, <em>Salmo trutta</em>, in the Colville River Watershed</td>
<td>Allan Scholz</td>
</tr>
<tr>
<td>8:40</td>
<td>Bryan Witte</td>
<td>Life History of the Umatilla Dace (<em>Rhinichthys Umatilla</em>) in the Colville River, Stevens County, Washington</td>
<td>Allan Scholz</td>
</tr>
<tr>
<td>9:00</td>
<td>Shawna Warehime</td>
<td>Albeni Falls Dam Restricts Movements of Bull Trout to Natal Tributaries</td>
<td>Allan Scholz</td>
</tr>
<tr>
<td>9:20</td>
<td>Christopher Brady</td>
<td>Distribution and Abundance of Owls on Turnbull National Wildlife Refuge: Effects of Prescribed Burns</td>
<td>Margaret O’Connell, Suzanne Schwab</td>
</tr>
<tr>
<td>9:40</td>
<td>Amy Gray</td>
<td>Does Mistletoe Infection in Ponderosa Pine Alter Fungal Endophyte Community Composition?</td>
<td>Suzanne Schwab</td>
</tr>
<tr>
<td>10:00</td>
<td>Break</td>
<td></td>
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</tr>
<tr>
<td>10:20</td>
<td>Erin Cubley</td>
<td>Initial Response of Riparian Vegetation Following Dam Removal on the Elwha River, Washington</td>
<td>Rebecca Brown</td>
</tr>
<tr>
<td>10:40</td>
<td>Jarrett Schuster</td>
<td>Vegetation Recovery in Drained Reservoirs along the Elwha River, Washington</td>
<td>Rebecca Brown</td>
</tr>
<tr>
<td>11:00</td>
<td>Megan Chastain</td>
<td>Substantial Improvement of Zebrafish Egg Storage in Oviductal Fluid under a Controlled Gas Environment</td>
<td>Charles Herr</td>
</tr>
<tr>
<td>11:20</td>
<td>Heather Frady</td>
<td>Morphological &amp; Genetic Characterization of Triatomine: Vectors of Chagas Disease in Texas</td>
<td>Camille McNeely</td>
</tr>
<tr>
<td>11:40</td>
<td>Shaley Martin</td>
<td>Human Cloning</td>
<td>Bradley Fillmore</td>
</tr>
</tbody>
</table>
## Oral Session 7: English
### Room 221, 8:00 a.m.—12:00 noon

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Paul Lee</td>
<td>Inviting (the) University: Disarming Violent Rhetoric and Working Towards a Charitable Rhetoric in Composition Theory</td>
<td>Justin Young</td>
</tr>
<tr>
<td>8:20</td>
<td>Pauline Baird</td>
<td>Time for a Nap</td>
<td>Matthew Hodgson</td>
</tr>
<tr>
<td>8:40</td>
<td>Sharon McClintock</td>
<td>Maus: The Story of a Real Superhero</td>
<td>Paul Lindholdt</td>
</tr>
<tr>
<td>9:00</td>
<td>Fred McFarland</td>
<td>Warrior-Kings and Their Giants: The Intertextuality of Beowulf and the Story of King David</td>
<td>Paul Lindholdt</td>
</tr>
<tr>
<td>9:20</td>
<td>Fred McFarland</td>
<td>Treatment for the Psychopathic Female in Victorian England: A Psychoanalysis of Bronte’s Bertha and Lucy Snow</td>
<td>Beth Torgerson</td>
</tr>
<tr>
<td>9:40</td>
<td>Justin Abel</td>
<td>A Clash of Literary Titans: George Orwell’s Criticism of W.B. Yeats</td>
<td>Anthony Flinn</td>
</tr>
<tr>
<td>10:00</td>
<td></td>
<td><strong>Break</strong></td>
<td></td>
</tr>
<tr>
<td>10:20</td>
<td>Sada Showell</td>
<td>Watchmen, Gender Issues, and Homosexuality</td>
<td>Paul Lindholdt</td>
</tr>
<tr>
<td>11:00</td>
<td>Galen Rock</td>
<td>Navigating Sports Journalism’s Online Renaissance</td>
<td>Jamie Tobias Neely</td>
</tr>
<tr>
<td>11:20</td>
<td>Daniel Williamson</td>
<td>Information Development as a Model for Systemic EFL Instructional Reforms in Ecuador</td>
<td>Tracey McHenry</td>
</tr>
<tr>
<td>11:40</td>
<td>Brandy Bippes</td>
<td>Interning Abroad Through the Benjamin A. Gilman Scholarship: Experiencing Technical Communication in Shanghai</td>
<td>Elena Axton</td>
</tr>
</tbody>
</table>
## Oral Session 8: Anthropology

**Room 243, 8:00 a.m.—11:40 a.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Janie Knutson</td>
<td>Peditham hi sui velyn?: Fan Adaption of Invented Languages</td>
<td>Julia Smith</td>
</tr>
<tr>
<td>8:20</td>
<td>Holly Frazier</td>
<td>Nepalese Language Endangerment</td>
<td>Michael Zukosky</td>
</tr>
<tr>
<td>8:40</td>
<td>Samantha Thiel</td>
<td>Identity and Language Revitalization among American Indians</td>
<td>Michael Zukosky</td>
</tr>
<tr>
<td>9:00</td>
<td>Anna Greiner-Shelton</td>
<td>Successes and Problems of the Hawaiian Language Revitalization Movement</td>
<td>Michael Zukosky</td>
</tr>
<tr>
<td>9:20</td>
<td>Casey Polmueller</td>
<td>Efficacy of Long-Chain Fatty Acids and Immune Response</td>
<td>Sarah Keller</td>
</tr>
<tr>
<td>9:40</td>
<td>Nambi Gamet</td>
<td>The Effects of Intentional Cranial Deformation on Fontanelles with a Focus on Pterion</td>
<td>Sarah Keller</td>
</tr>
<tr>
<td>10:00</td>
<td></td>
<td><strong>Break</strong></td>
<td></td>
</tr>
<tr>
<td>10:20</td>
<td>Taylor Phillips</td>
<td>Perceptions of Rape Culture among Young Adults in Spokane County</td>
<td>Julia Smith</td>
</tr>
<tr>
<td>10:40</td>
<td>Cassandra Koch</td>
<td>Female Genital Mutilation (FGM): Practice, Tradition, and Intervention Amongst the Maasai</td>
<td>Jerry Galm</td>
</tr>
<tr>
<td>11:00</td>
<td>Tiffani Kittilstved</td>
<td>The P-P-P-Perceptions of ST-ST-Stuttering</td>
<td>Julia Smith</td>
</tr>
</tbody>
</table>
## Session 9: Psychology II
Room 302, 8:40 a.m.—10:40 a.m.

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:40</td>
<td>Kenzie Bush, Benjamin Lister</td>
<td>Implications for Happiness</td>
<td>Nick Jackson</td>
</tr>
<tr>
<td>9:00</td>
<td>Danielle Bentow</td>
<td>Mental Health Outcomes as a Function of Breastfeeding Experience</td>
<td>Kayleen Islam-Zwart</td>
</tr>
<tr>
<td>9:20</td>
<td>Danielle Foster</td>
<td>Gender Differences in Digit Span Recall</td>
<td>Kayleen Islam-Zwart</td>
</tr>
<tr>
<td>9:40</td>
<td>Nicole Sestrap</td>
<td>Does Compatibility Matter? The Influence of Sleep Preference on the Ability to Engage in Activities</td>
<td>Amani El-Alayli</td>
</tr>
<tr>
<td>10:00</td>
<td>Karissa Mack, Aaron Walsdorf</td>
<td>Behavioral Problems and Attachment Styles in Foster Care</td>
<td>Russell Kolts</td>
</tr>
<tr>
<td>10:20</td>
<td>Christi Lewallen, Mauricio Zumba</td>
<td>Exploring Relationships Between Anger, Narcissism, Shame and Compassion</td>
<td>Russell Kolts</td>
</tr>
</tbody>
</table>

## Session 10: Spanish
Room 302, 11:00 a.m.—12:00 noon

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00</td>
<td>Jacqueline Arana</td>
<td>La Mujer en la Novela Policial</td>
<td>Natalia Ruiz-Rubio</td>
</tr>
<tr>
<td>11:20</td>
<td>Rigoberto Gutiérrez-Piñón</td>
<td>Bilingualism and Latinos in the United States</td>
<td>Martín Merá García</td>
</tr>
<tr>
<td>11:40</td>
<td>John Nielsen</td>
<td>Equatoguinean Spanish and Literature</td>
<td>Michael Zukosky Jose García-Sanchez</td>
</tr>
</tbody>
</table>
# Oral Session 11: Chicano Education II and American Indian Studies

Room 304, 8:00 a.m.—12:20 p.m.

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Tatiana Hernandez</td>
<td>The Day of the Dead in the United States</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>8:20</td>
<td>Kathleen Scott</td>
<td>Dolores Huerta: Activist</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>8:40</td>
<td>Nicholas Law</td>
<td>Architecture of the Modern World</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>9:00</td>
<td>Jaime Frausto-Cerna</td>
<td>Narcocorridos</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>9:20</td>
<td>John Whiting-Call</td>
<td>Chicano Impact on U.S. Comedy</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>9:40</td>
<td>Nathen Bauer</td>
<td>Major League Baseball’s Marketing Strategies to the Chicano Demographic</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>10:00</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:20</td>
<td>Anthony McChesney</td>
<td>Chicano Assimilation into US Athletics</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>10:40</td>
<td>Damen Diaz</td>
<td>Roberto Clemente’s Impact on Major League Baseball</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>11:00</td>
<td>Lynnzie Paulson</td>
<td>Percentage of Chicano Nurses in Spokane</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>11:20</td>
<td>Jack SimHayKin</td>
<td>A Comparative Study of the Impact of Activism and/or Resistance on Indigenous and Chicano Identity</td>
<td>Deirdre Almeida</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>11:40</td>
<td>Jackie Vaughn</td>
<td>Examining the Effects of Zero Tolerance Policies in Schools and the Need for Alternatives to Suspension Programs</td>
<td>Kim Richards</td>
</tr>
<tr>
<td>12:00</td>
<td>Katherine Elliot, Mitchell Koonz</td>
<td>Race and Capital Punishment</td>
<td>Christina Torres Garcia</td>
</tr>
</tbody>
</table>
### Oral Session 12: Occupational Therapy
**Room 306, 8:20 a.m.—9:40 a.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:20</td>
<td>Greg McMichael, Liz Follis, Nicolee Curtis, Sophie Torba</td>
<td>Occupational Therapy Department Interprofessional Education Program Evaluation</td>
<td>Robert Krueger</td>
</tr>
<tr>
<td>8:40</td>
<td>Mark Swain, Scott Rice, Shaina Mote, Mike Maynard, Chanel Welsh</td>
<td>What is the Role of a Fieldwork II Student in an Integrated Co-Occurring Services Program?</td>
<td>Diane Norell</td>
</tr>
<tr>
<td>9:00</td>
<td>Shannon White, Curtis Pearson, Amylynne Sargent, Jennifer McQuillan, Molly Hubbs</td>
<td>Perceptions of Employers in Spokane County Regarding Employing Individuals with Autism Spectrum Disorder</td>
<td>Roberta Russell</td>
</tr>
<tr>
<td>9:20</td>
<td>Tara Clemons, Lisa Welk, Wileen Rigor, Allison Vlcek, Tristin Glennon, Mary Ann Ehrgott</td>
<td>Arts in Healing in Pediatric Oncology</td>
<td>Greg Wintz</td>
</tr>
</tbody>
</table>

### Oral Session 13: Physical Therapy
**Room 306, 10:00 a.m.—12:00 noon**

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00</td>
<td>Brianna DeWitt</td>
<td>Exercise Dosage and Pelvic Floor Muscle Function in Young Women With and Without Urinary Incontinence</td>
<td>Patricia Nelson</td>
</tr>
<tr>
<td>10:20</td>
<td>Jayme Gilmore, Lindsay Robb</td>
<td>Physical Risk Factors and Related Musculoskeletal Disorders among Dental Hygienists</td>
<td>Dan Anton</td>
</tr>
<tr>
<td>10:40</td>
<td>Jayme Gilmore, Greg Mortensen</td>
<td>Prevention Strategies for Dental Hygienists to Reduce Risk of Work-Related Musculoskeletal Disorders</td>
<td>Dan Anton</td>
</tr>
<tr>
<td>11:00</td>
<td>Neil Morris, Ben Tucker, Jesse Brouwer</td>
<td>Comparison of Muscle Activity Between Cutting with a Sub-Compact Portable Bandsaw and Hacksaw</td>
<td>Dan Anton</td>
</tr>
<tr>
<td>11:20</td>
<td>Neil Morris, Ben Tucker, Jesse Brouwer</td>
<td>Construction Solutions Database</td>
<td>Dan Anton</td>
</tr>
<tr>
<td>11:40</td>
<td>Sean Campbell, Louie Cerenzia</td>
<td>Creating Engaging &amp; Interactive Ergonomic Modules via Adobe Premier and Captivate</td>
<td>Dan Anton</td>
</tr>
<tr>
<td>Time</td>
<td>Author</td>
<td>Title</td>
<td>Mentor</td>
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<tr>
<td>1:30</td>
<td>Ria Jewell, Kendra Crump, Erika Miller, Emily Wood</td>
<td>Tipping Tendencies in Sit-Down Restaurants by College Students</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>1:50</td>
<td>Justine Recor, Jesse Butcher, Cameron Siekawitch, Chris Gray</td>
<td>Coffee Wars</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>2:10</td>
<td>Lindsay Kirby, Chad Creighton</td>
<td>The Relationship Between Incarceration Factors and Internal Locus of Control</td>
<td>Kayleen Islam-Zwart</td>
</tr>
<tr>
<td>2:30</td>
<td>Leah Parker, Christi Lewallen, Aaron Walsdorf, Antonia Cervantes</td>
<td>Shame and Mathematics Anxiety</td>
<td>Russell Kolts</td>
</tr>
<tr>
<td>2:50</td>
<td>Kara Winkleman, Blake Gimbel</td>
<td>Self-Enhancement Bias in Self-Partner Personality Comparisons</td>
<td>Amani El-Alayli</td>
</tr>
<tr>
<td>3:10</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:20</td>
<td>Haley Dolman, Ayanna Jacobs Kalyan, Adrienne Johnson</td>
<td>Perception of Money</td>
<td>Theresa Martin</td>
</tr>
<tr>
<td>3:40</td>
<td>Veronica Angel</td>
<td>How Can Mobile Technology Help to Reduce the Incidences of Cyberbullying?</td>
<td>Sharon Laing</td>
</tr>
<tr>
<td>4:00</td>
<td>Ted MacLennan</td>
<td>Evaluating How Mobile Technology Can Reduce Excessive Alcohol Use among High School Freshmen</td>
<td>Sharon Laing</td>
</tr>
<tr>
<td>4:20</td>
<td>Sara Blessington</td>
<td>The Impact of CPS and Special Education on Adjustment for Male Inmates</td>
<td>Kayleen Islam-Zwart</td>
</tr>
<tr>
<td>4:40</td>
<td>Daniel Gallagher</td>
<td>The Effects of Marijuana Use Prior to and in Relationship to Reported Psychiatric Symptoms and Behavioral Issues of Prisoners While Incarcerated</td>
<td>Kayleen Islam-Zwart</td>
</tr>
</tbody>
</table>
### Oral Session 15: PechaKucha

**Visual Communication Design and Communication Studies**  
**Room 124, 1:30 p.m.—2:50 p.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
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</thead>
<tbody>
<tr>
<td>1:30 to 2:50</td>
<td>Joseph Snodgrass</td>
<td>Education of the Modern World</td>
<td>Mindy Breen</td>
</tr>
<tr>
<td></td>
<td>Joseph McMichael, Thomas McMichael</td>
<td>REEF (Conservation)</td>
<td>Mindy Breen Travis Masingale</td>
</tr>
<tr>
<td></td>
<td>Melissa Doty</td>
<td>NGO Imperialism in Latin America or Yanquis Go Home</td>
<td>Jeffrey Stafford</td>
</tr>
<tr>
<td></td>
<td>Lauren Campbell</td>
<td>The Multifaceted Project: Black Women Telling Their Stories</td>
<td>Roger Ralston</td>
</tr>
</tbody>
</table>

### Oral Session 16: Communication Studies

**Room 124, 3:00 p.m.—4:00 p.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
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</thead>
<tbody>
<tr>
<td>3:00</td>
<td>Desalyn Graybeal, Heather Chandler</td>
<td>Returning to Graduate: The Trials, Tribulations and Rewards of Being a Non-Traditional Graduate Student</td>
<td>Steve Stewart</td>
</tr>
<tr>
<td>3:20</td>
<td>Madison Hilpert</td>
<td>Water Revolution: Project EWU</td>
<td>Jeffrey Stafford</td>
</tr>
<tr>
<td>3:40</td>
<td>Desalyn Graybeal</td>
<td>Pet Chickens and Interspecies Communication</td>
<td>Steve Stewart Galina Sinekopova</td>
</tr>
</tbody>
</table>
Oral Session 17: Chicano Education III
Room 201, 1:30 p.m.—5:00 p.m.

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
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</thead>
<tbody>
<tr>
<td>1:30</td>
<td>Joanna Gutierrez</td>
<td>Deportation</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>1:50</td>
<td>Juan Sanchez</td>
<td>Arizona’s Economics</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>2:10</td>
<td>Jereny Mendoza</td>
<td>The Forgotten Members of Our Society: Latinos in the Criminal Justice System</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>2:30</td>
<td>Moncerat Rodriguez</td>
<td>Barriers to a Higher Education of Undocumented Students</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>2:50</td>
<td>Taylor Phillips</td>
<td>Immersion and Bilingual Education: The Attack on Chicano Students</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>3:10</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:20</td>
<td>Sydney Green</td>
<td>Immigrating Children and Early Childhood Education</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>3:40</td>
<td>Amy Nunez</td>
<td>The Perceptions of College among Latino Elementary Students</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>4:00</td>
<td>Stephanie Fuentes</td>
<td>Dreams Denied</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>4:20</td>
<td>Tom Brooks</td>
<td>US Schools Falling Short of Chicano Needs</td>
<td>Martin Meraz Garcia</td>
</tr>
<tr>
<td>4:40</td>
<td>Rosa Guerrero</td>
<td>Social Work and Chicano/Latino Diversity</td>
<td>Martin Meraz Garcia</td>
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</tbody>
</table>

Oral Session 18: Philosophy II
Room 203, 1:30 p.m.—2:50 p.m.

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
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<tbody>
<tr>
<td>1:30</td>
<td>Christofer Koch</td>
<td>Is Truth Contextual?</td>
<td>Terrance Mac Mullan</td>
</tr>
<tr>
<td>1:50</td>
<td>Mikaila Read</td>
<td>A Vindication of Emotional Experience in Philosophical Matters</td>
<td>Terrance Mac Mullan</td>
</tr>
<tr>
<td>2:10</td>
<td>Jennifer Wilcox</td>
<td>The Problem Rests Not with the Pupils</td>
<td>Christopher Kirby</td>
</tr>
<tr>
<td>2:30</td>
<td>Rachel Moen</td>
<td>Hermeneutics Within the Social Sciences</td>
<td>Mimi Marinucci</td>
</tr>
</tbody>
</table>
## Oral Session 19: Government and Economics

**Room 204, 1:30 p.m.—4:40 p.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
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</thead>
<tbody>
<tr>
<td>1:30</td>
<td>Jenia Rousseva</td>
<td>A Fresh Look at Incentive Effects: Assessing Heterogeneity and Effort in Men’s Tennis</td>
<td>Nathan Skuza</td>
</tr>
<tr>
<td>1:50</td>
<td>Ezekiel Loseke</td>
<td>Reworking the Electoral College</td>
<td>Kevin Pirch</td>
</tr>
<tr>
<td>2:10</td>
<td>Mary Ormsby</td>
<td>South African Music and Its Contribution to Globalization of the Anti-Apartheid Movement</td>
<td>Majid Sharifi</td>
</tr>
<tr>
<td>2:30</td>
<td>Virginia Morales</td>
<td>An Indigenous Contribution to the International Community</td>
<td>Majid Sharifi</td>
</tr>
<tr>
<td>2:50</td>
<td>Victoria Polanco-Harper</td>
<td>Sidewalk Spielbergs: Panoptical Police State and Superior Protection</td>
<td>Matthew Hodgson</td>
</tr>
<tr>
<td>3:10</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3:20</td>
<td>Gregory Gormley</td>
<td>Are We All Terrorists?</td>
<td>Majid Sharifi</td>
</tr>
<tr>
<td>3:40</td>
<td>Erick Erickson</td>
<td>The Dancing God</td>
<td>Thomas Hawley</td>
</tr>
<tr>
<td>4:00</td>
<td>Betty Craipo</td>
<td>The Psychic Health of a Life Worth Leading and the Necessary Role of Obedience for Nietzsche</td>
<td>Thomas Hawley</td>
</tr>
<tr>
<td>4:20</td>
<td>Samantha Berry</td>
<td>Friedrich Nietzsche’s View on the Genealogy of Morality</td>
<td>Thomas Hawley</td>
</tr>
</tbody>
</table>

## Oral Session 20: Women’s and Gender Studies

**Room 221, 1:30 p.m.—4:00 p.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
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</thead>
<tbody>
<tr>
<td>1:30</td>
<td>Betsy White</td>
<td>Gender Variance in the Classroom: Why Does It Matter and What Are the Challenges of Supporting These Children</td>
<td>Ning Li</td>
</tr>
<tr>
<td>1:50</td>
<td>Tabria Lee-Noonan</td>
<td>Ethnicity, Gender and Tobacco Use Patterns Among U.S. Adults</td>
<td>Kawkab Shishani</td>
</tr>
<tr>
<td>2:10</td>
<td>Renee Honn</td>
<td>Aspects of Feminist Musicology</td>
<td>Jane Ellsworth</td>
</tr>
<tr>
<td>2:30</td>
<td>Bryce Thomson</td>
<td>Roman Polanski’s <em>Repulsion</em>: A Masculine Invasion of Feminine Space</td>
<td>Pete Porter</td>
</tr>
<tr>
<td>2:50</td>
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</tr>
<tr>
<td>3:00</td>
<td>Keralyn Parsons</td>
<td>The World’s Oldest Profession: Why Is Prostitution Really Illegal?</td>
<td>Matthew Hodgson</td>
</tr>
<tr>
<td>3:20</td>
<td>Joy Woods</td>
<td>Donor Sperm and the Decisions of Disclosure</td>
<td>Sue Wright</td>
</tr>
<tr>
<td>3:40</td>
<td>Fira Hedlund</td>
<td>Are YOU a Sexual Citizen?</td>
<td>Elizabeth Kissling</td>
</tr>
</tbody>
</table>
## Oral Session 21: Mathematics, Geography, Geology, Biochemistry  
Room 243, 1:30 p.m.—2:50 p.m.

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30</td>
<td>Jasmine Burns, Samuel Wolkenhaur</td>
<td>Predicting Medal Count in the Winter Olympics</td>
<td>Christian Hansen</td>
</tr>
<tr>
<td>1:50</td>
<td>Jarod Gunning</td>
<td>Modeling Electricity Usage</td>
<td>Christian Hansen</td>
</tr>
<tr>
<td>2:10</td>
<td>Martee Schafer</td>
<td>Phosphorus and Algae Growth in the Spokane River</td>
<td>Robert Quinn</td>
</tr>
<tr>
<td>2:30</td>
<td>Amber Haston, Drew Adams</td>
<td>The Use of Photographic Interpretation to Determine the Compositional Volume and Nature of Mixed Magma from Basalt and Rhyolite Complexes at Yellowstone National Park</td>
<td>Chad Pritchard</td>
</tr>
<tr>
<td>2:50</td>
<td>Kimberlie Ploss</td>
<td>Comparison of Chemi-Luminescent Blood Enhancement Reagents</td>
<td>Peter Bilous</td>
</tr>
</tbody>
</table>

## Oral Session 22: History and Art History  
Room 302, 1:30 p.m.—4:20 p.m.

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30</td>
<td>Logan Camporeale</td>
<td>Guns, Germs, and Steel: A Holistic History Through a Scientific Lens</td>
<td>Ann LeBar</td>
</tr>
<tr>
<td>1:50</td>
<td>Mica Pointer</td>
<td>The God Behind the Mask: The Origins of Greek Theatre from Proto-Attic Shamanism</td>
<td>Terrance MacMullan</td>
</tr>
<tr>
<td>2:10</td>
<td>Nicolette Reames</td>
<td>Ancient Anatolian Women Rulers: Queen Ada</td>
<td>Georgia Basemore</td>
</tr>
<tr>
<td>2:30</td>
<td></td>
<td><strong>Break</strong></td>
<td></td>
</tr>
<tr>
<td>2:40</td>
<td>Cheyenne Dunham</td>
<td>Death, Disease and Cannibalism: How Drought and Starvation Contributed to the Near Failure of Jamestown During the Starving Time of 1609-1610</td>
<td>Joseph Lenti</td>
</tr>
<tr>
<td>3:00</td>
<td>Remelisa Cullitan</td>
<td>Relationship Between Literature and the Visual Arts During the Seventeenth Century</td>
<td>Barbara Miller</td>
</tr>
<tr>
<td>3:20</td>
<td>Dallen Bifano</td>
<td>Landscape Painters of the Baroque Period: Claude Lorrain and Jacob Ruidall</td>
<td>Barbara Miller</td>
</tr>
<tr>
<td>3:40</td>
<td>Robert Jones</td>
<td>The Death of Narrative: Art’s Changing Focus in the Nineteenth Century</td>
<td>Barbara Miller</td>
</tr>
<tr>
<td>4:00</td>
<td>Katrina Knizek</td>
<td>A Visual History of Tattooing</td>
<td>Barbara Miller</td>
</tr>
</tbody>
</table>
## Oral Session 23: Physical Education, Health and Recreation, and Health Services Administration

**Room 304, 1:30 p.m.—4:00 p.m.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Author</th>
<th>Title</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30</td>
<td>Amanda Humphrey, Jennifer Ach, Leslie Martin, Andrew Downing</td>
<td>Comparing the Clinical Methods of Assessing Hydration Status in Athletes</td>
<td>Jeffrey Kawaguchi</td>
</tr>
<tr>
<td>1:50</td>
<td>Jenn Kumanchik</td>
<td>Recovery from Spinal Shrinkage: A Comparison of Four Unloading Positions</td>
<td>Jeni McNeal</td>
</tr>
<tr>
<td>2:10</td>
<td>Gavin McBride, Kalene Lynch, Dustin Stanek, Daniel Markin</td>
<td>Effects of a Short Term, Short Duration, High Intensity Exercise Intervention on Body Composition and Intra-Abdominal Fat</td>
<td>Wendy Repovich</td>
</tr>
<tr>
<td>2:30</td>
<td>Joey Segalla</td>
<td>Bone Marrow Transplantation: The Only Viable Cure for Beta Thalasemia Major</td>
<td>Matthew Hodgson</td>
</tr>
<tr>
<td>2:50</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:00</td>
<td>Jeri Rathbun</td>
<td>Lead and Market Gardens: The Health Concerns of Agricultural Novices Producing Food in the Urban Central Spokane Area</td>
<td>Bob Scarfo</td>
</tr>
<tr>
<td>3:20</td>
<td>Yevgeny Zhupikov</td>
<td>Psychotropic Medications in Long-Term Care Facilities: An Analytical Review of a CMS Policy</td>
<td>Amanda Reedy</td>
</tr>
<tr>
<td>3:40</td>
<td>Natalie Guthas, Megan Kile, Jamilyn Cassel</td>
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Poster Sessions

Hargreaves Hall, 2nd Floor Reading Room
Session 1: 8:30 a.m.-10:00 a.m.; Session 2: 10:30 a.m.-12:00 noon
Session 3: 1:30 p.m.-3:00 p.m.; Session 4: 3:30 p.m.-5:00 p.m.

Presenters will be available to discuss their posters during each session

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# Interactive Sessions

**Hargreaves Hall, 2nd Floor Reading Room**  
**Session 1: 10:30 a.m.-12:00 noon; Session 2: 1:30 p.m.-3:00 p.m.**

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Creative Works Project Descriptions

The Thin Man
Kyle Beckwith
Adam Boyd, Film

This film follows a silent hit man while he observes his latest target. The goal of the film was to create a voyeuristic narrative that never breaks from the central character's point of view. Without using dialogue, I wanted to illustrate the character's isolation from the rest of the world by using windows, glass, and sound design.

Pass the Torch
Justine Beschta
Travis Masingale, Design

This abstract work is a collection of compositions that illustrate the journey one character goes through as they grow up. The works that make up the literary journey through the life of a candle represent the struggles everyone faces in life specifically with diversity and a lack of acceptance. The panels begin with a light being established which represents the things that make each individual different and special. As the narrative continues it shows the water trying to extinguish the light of the single flame relating to the times in life when the things that make us special seem to make life harder. The flame becomes brighter as confidence is built representing the growth that allows an individual to be happy with who they are and learn to stand up for themselves. The last panel is passing the flame on to show that once an individual reaches the point where they are able to accept themselves; they need to pass that love and approval on to others. As people we need to share and grow throughout life in order to completely be fulfilled.

Grayback Mountain: Movement II
Montgomery Boldt
Jonathan Middleton, Music

The second movement of Grayback Mountain is a continuation of the first movement’s programmatic and spectral elements. Using a spectral analysis of the harmonic series based on woodland animals, I have tried to convey my experiences in nature. In the first movement, the melodies were based primarily on analysis of bird calls. The second movement will focus on a wider range of creatures, to include mammals, birds, and insects.

NWDC musical Theatre Package
Cody Bray
Sara Goff, Theatre
Shana Joslynn, Theatre

This is the winning Two-song package that was taken to the Kennedy Center American College Theatre Festival for their NWDC Musical Theatre Competition.

Scene Painting Final
Cody Bray
Shana Joslynn, Theatre

This is a painting for our final in our Theatre Tech 2 class concentration on scenic design. The requirements where to recreate a picture including 25%-50% Foliage and 25%-50% Stone/Brick. This is a painting of a Stone Golem in a
clearing next to a dense forest. I used many techniques in this painting including dry scumble, wet blends, sponging, rag-rolling, and spatter.

**Imitating Foliage at 20 Feet**  
**Christine Buckley**  
*Shana Joslyn, Theatre*

This presentation consists of a Broadway flat painted to resemble a magazine photograph. A Broadway flat is a large piece of muslin stretched over a frame made of 1x4s. After a process to treat the muslin in order to stretch the fabric into a tight, flat painting surface, a backdrop is created using latex paint. The various methods and techniques used to create various leaf and plant effects will be explained. The importance of the 20-foot rule in theatre will be explained.

**Red Dot**  
**Lauren Campbell**  
*Roger Ralston, Art*

This video features Roger Ralston's winter 3D Design class placing a large, red, fiberglass circle in various places on campus with the intent of showing how the sudden introduction of something obstructive can change or magnify certain social behaviors we have about the unknown.

**Untitled**  
**Melissa Carpenter**  
*Chris Tyllia, Art*  
*Lisa Nappa, Art*

I believe humans experience the world in similar ways, beyond the bounds of language or location. Regardless of whether I am working with paint or with clay, my goal is to express our human sameness and uniqueness simultaneously, suggesting both personal and community experiences and goals. I take much inspiration from literature’s Magical Realism, first inspired by Gabriel García Márquez, where the fantastical appears normal and the commonplace enjoys elevated status. It is a fertile environment where common experience and dreams can interact. My current work is an exploration into different parts of self-concept, flaws, brokenness and expectation. The narrative qualities of the work invite the viewer to explore these themes for themselves by deciding where the story has come from and where it is going.

**The Last Testament of Matt Daver**  
**Tyler Clark, Chris Mudd, Aaron Shell, Phil Peckels, Sean McNeil**  
*Adam Boyd, Film*

This film was written, shot, and edited all within 50 hours as part of the 50 Hour Slam film festival held in Spokane. Shot on campus and in Spokane, our film explores the relationship of three friends as they come to terms with their friend Matt's death.

**Perry Moppins**  
**Caitlin Clawson**  
*Tom Askman, Art*

48x60” Oil on canvas.
Ambition
Jake Cunningham
Jonathan Middleton, Music

Being the first complete work from the composer, it is easy to see the reasoning behind the title of the piece: “Ambition,” a guitar quartet. Since his musical past was strongly centered around guitar music, a guitar quartet seemed the most fitting for a premiere. The piece was composed January-March of 2014.

Northwest Boulevard: Memories and "Before I Go"
Kate Daniel
Kate Peterson, English - Creative Writing

Before I Go, and "Memories," poems by Kate DanielThese pieces will be read as a part of the Northwest Boulevard literary magazine presentation. Both are short confessional poems.

Tossed and Found
Jennifer DeBarros
Jenny Hyde, Art

Title: Tossed and Found.My series of drawings on old, vintage portraits alongside with complementing collages, was a way to bring a forgotten image new life through color, pattern and design. My intent through these contemporary drawings was to reinvent the existing portrait that was found. Through the collection of reinvented portraits I began to create a new visual story upon the story that already existed in the found photograph. The series brings alive images that had been tossed aside to once again being viewed and appreciated.

Guitar Quartet No.3
Tyler Dines
Jonathan Middleton, Music

Quartet No.3 is the third guitar quartet piece that I've composed for the EWU Guitar Ensemble. It features a synthetic scale known as Double Harmonic which contains the scale degrees, based on a Major key, 1, b2, 3, 4, 5, b6, and 7. This scale contains two augmented 2nds thus earning its name Double Harmonic (harmonic minor contains one augmented 2nd). When using this scale, an exotic sound is produced that may remind the listener of Gypsy or Arabic music. This scale is used in both popular and classical compositions such as Misirlou (a folk song made famous by Dick Dale in 1962) and La Puerta del Vino (a piano prelude composed by Claude Debussy).

Northwest Boulevard: A Reading of Selected Works
Melissa Dziedzic
Kate Peterson, English - Creative Writing

I will be reading prose and poetry by students who were published in the latest issue of Northwest Boulevard, but were unable to attend this year's event. Northwest Boulevard is Eastern Washington University’s annual literary magazine that is run by undergraduate students of EWU. Northwest Boulevard publishes students who currently attend or have attended EWU.
Lucid Dream
Jessica Earle  
Jenny Hyde, Art

By questioning the concept of movement, the viewer finds that movement reveals an inherent awkwardness, a humour that echoes our own vulnerabilities. The viewer also considers movement as a metaphor for the ever-seeking man who experiences a continuous loss. This conceptual artwork isolates the movements of transportation and daily ritual. By doing so, new sequences are created which reveal an inseparable relationship between motion and sound.

Chant
Margaret Francik  
Jonathan Middleton, Music

Chant is a piece I have composed based on Gregorian Chant. Gregorian chant is a style of singing that originated in the 8th and 9th centuries in Europe. It represents unaccompanied vocal works, for groups or soloists, sung strictly in a sacred sense in the Christian Church. The chants were written in modal styles, foreign to our modern day equal-tempered keys, and therefore have a haunting, beautiful quality. My piece attempts to capture the same, mysterious essence of Gregorian chant, experimenting with unusual keys and set to a non-sacred text.

Piano Sonata No. 1
Douglas Gade  
Jonathan Middleton, Music

Piano Sonata No.1 is based off a theme I encountered while exploring interesting chords and their structures.

Watercolor #38
Marina Gulova  
Kate Peterson, English - Creative Writing

This is a piece I made using watercolor and permanent marker. It's an image of a jellyfish on a yellow green background and uses mainly pastel colors. The painting was asked to be used as a cover for Northwest Boulevard.

The Faces of Villainy
Christopher Hansen  
Shana Joslyn, Theatre  
Sara Goff, None

A presentation on technical theatre, design techniques, and personal study and creation of special effects make-up.

The Institution for Subtle Learning
Greg Haste  
Jodi Patterson, Art

Originally this project was a play on words: a drag queen taking a drag while dragging. Later the work took on a more serious tone. It became an experiment of gender roles. This video documents the first time a heterosexual male feels pretty. The performance took place along West 3rd Ave in Spokane on March 8th. The performance was for 12 minutes and the edited loop that is the piece is 9 minutes.
Rainforest Fugue
Scot Hebert 
Jonathan Middleton, Music

I have written a piece named Rainforest Fugue. It will be performed on a player piano at the Symposium. This piece features melodic, rhythmic, and spectral elements that have been derived from a rainforest audio recording. The work also includes pitch collections which are derived from algorithms. This composition was not only created as a means to explore musical technique and form as a purely musical phenomena, but also to explore musical technique and form as it relates to nature.

Transitory
Derrick Jackson 
Jenny Hyde, Art

Dreams are successions of images, ideas, emotions, and sensations that occur involuntarily in the mind during certain stages of sleep. In this artwork I am trying to capture the moment in which you are sleeping/dreaming but still slightly aware of the physical world around you. In this state your dreams take cues from the sounds and tactile environment of the physical world, and integrates the media into your subconscious. I often times find that my dreams are most intense and memorable when I am under stress from different situations in life, be it work, school, living situations, or the need to create something lasting in my lifetime. In this sense, my dreams become a way for me to process these events in my life and the emotions that accompany them, much like the role of art in my life. Accordingly, the combining of dreams into art implied a very fluid and natural creative process. The narrative presented in this artwork is that of someone who has invited an outsider into a personal stream of subconscious thought and imagination, guiding the outsider through a lucid dream.

Confined
Hattie Johnson 
Jamie Hahn, Art

This piece represents the wall/ barrier we as people put up around ourselves in order to protect us from emotional harm caused by others. I exposed two negatives at the same time in the darkroom to achieve the double exposure effect.

Selections from Tomas Tranströmer influenced poems and the Lost Mariner Poems
Paul Lee 
Christopher Howell, English - Creative Writing

This reading will include poems that explore a meditative and impressionistic quality, as influenced by Tomas Tranströmer. It will also feature selections from the Lost Mariner series of poems.

KCACTF Package
David Logghe, Halley Gilbert 
Sara Goff, Theatre 
Jeff Sanders, Theatre

A pair of scenes and a monologue from three different plays: the first a dramatic piece, the second a comedy, and the third a heartfelt realism piece.
Reach
Sonia Mededovic
Jamie Hahn, Art

This is a self-portrait taken with 35mm black and white film. My work explores the power and strength that comes from solitude. I like to delve into ideas of self and identity, exploring how I see myself and others in relation to the world around us.

Dipsomania
Nichole Nevenhoven
Jenny Hyde, Art

Through the use of paper bags, vellum, and charcoal I wanted to convey the transparency of addiction and consequences of alcoholism on the individual and family.

Untitled
Polina Nikolayev
Greg duMonthier, Art

Through the human way of learning by order and logic, this sculpture explores the relationship between mankind and nature. Though we practice dominion over our world and exploit it for resources we are still drawn to it and mesmerized.

Grist: Poetry
Kate Peterson
Rachel Toor, English - Creative Writing

I will be reading poems that were written during my two years as an MFA candidate at the Inland Northwest Center for Writers. Generally my poems are narrative in style and some, but not all, are autobiographical. They cover themes of love, loss, and medical trauma.

King Henry VI part III
Michelle Pyles, Aaron Taylor, Talia Jardin-Fermantez
Sara Goff, Theatre

Clifford and Queen Margret come in to kill York for killing their family and taking the crown from Henry after their deal was made.

Invidia
Thomas Sanborn, Austin Taylor, Adam Seiler
Jonathan Middleton, Music

Invidia is a three movement piece blending the use of acoustic guitars with prepared guitars. Mixing these instruments can be difficult not only for blending the diverse timbres between contrasting movements but also due to limited use of strings. The electric guitars are prepared for this particular piece by placing a wooden dowel on the twelfth fret. The strings are then plucked above the dowel. The strings below the dowel vibrate due to "sympathetic vibration" which is then amplified by the pickups on the body of the guitar.
**Dust**  
*Jake Sanders*  
*Adam Boyd, Film*

Dust is the story of a couple, who, after breaking up, reveal each of their perspectives about what was at fault in their relationship. The film was made as an assignment for the Winter Quarter Film Production class. The film delves into the themes of love, heartbreak, and devotion to a significant other, and how these boundaries can be pushed. The film also critiques the way some relationships are handled, and just how fragile the human psyche can be over trivial matters like love.

**Pretty Sweet Day**  
*Martin Sanks, Cody Bray, Carolyn Jess*  
*Sara Goff, Theatre*

In February EWUs theatre department had multiple students nominated for the extremely prestigious Annual Irene Ryan acting scholarship competition in Boise, ID; 3 of whom, made it to the final round, a feat never achieved by EWU. Prizes included scholarship money, job opportunities, and networking connections. Requirements were to show three separate scenes that demonstrated range of ability in acting in theatre. From 247 pairs of students at the start, down to the final 16, These are the scenes that made it through to the end.

**Serenade**  
*Kendra Ann Sherrill*  
*Adam Boyd, Film*

Serenade is a short film that deals with the complexities and heartache of love - both young and old - while also exploring the struggles of being true to yourself.

**The Education of the Modern World**  
*Joseph Snodgrass*  
*Mindy Breen, Design*

This manifesto takes inspiration from modern educational thinking (a multi-discipline exploration) and post-modern art thinking and attempts to utilize them in a way to inspire intellectual curiosity and wonder. In this flagship publication of The Education of the Modern World, specific areas utilized are history, holistic concepts (see the forest for the trees), cybernetics and systems (see the forest, the trees and their interrelationships), physics (astronomy), metaphysics, philosophy, humanism, and post-modern art (conceptual).

**The Journey to Conceptual**  
*Christopher Steele*  
*Chris Tyllia, Art*

A deconstructed look at thrown pieces going from traditional to sculptural. Thrown on the wheel in a dark stoneware clay body fired at cone 10.
**Skeletons**
*Kathryn Taylor*

Jenny Hyde, Art

This work is an exploration of stories and what is left behind after all the words are cut out. What you see is the skeleton of a story, something that has been rendered useless but beautiful.

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**Cheatgrass**
*Virginia Thomas*

*Cynthia Schoch, English - Creative Writing*

As a lyric essay, this piece attempts to weave together different moments in time, different objects and ideas, and different relationships into a cohesive whole. A lyric essay borrows the distilled, imagistic, metaphorical language of poetry, the factual elements of a research essay, and the biographical components of a memoir. Although it is centered around one night, the components of the essay do not follow chronological format. A mosaic of sorts, this lyric essay explores the concept of cheating, the heartache of longing, and the resilience of hope. As with most writing that deeply explores the human experience, the content is raw and the dialogue is unedited.

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**First Times**
*Bryce Thomson*

*Pete Porter, Film*

Original short film based on James Joyce's Araby.

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**Hijab Wall**
*Christina Torrieri*

*Chris Tyllia, Art*

Lisa Nappa, Art

Hijab Wall is about the multiple barriers that exist in forming friendships with women from cultures who wear the hijab and speak a language different from your own. You have both a verbal barrier as well as a physical barrier to overcome. The hijab can make recognizing the woman outside of the context of your meeting very difficult. I wanted to represent the woman as mysterious and beautiful but intimidating: special and apart from those around her. Stoneware and porcelain fired to Cone 6.

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**Untitled**
*Amy Ueckert*

*Greg DuMonthier, Art*

This sculpture includes a variety of materials that are relatively ordinary but put together in a way to give them new purpose and interest. The piece is an exploration of materials and their qualities and the potential of those qualities. It is also an exploration of taking mark making and linear movement that is found in drawing and putting it into 3-dimensional forms.
**Othello**
Brianna Williamson, Michelle Houston  
*Jeff Sanders, Theatre*  
*Sara Goff, Theatre*

We will perform a scene from William Shakespeare's "Othello", in which Desdemona, Othello's wife, and her maid Emilia discuss how Othello has changed.

**Awareness**
Joshua Wilson  
*Jenny Hyde, Art*

This series of drawings features physically layered content that is revealed in a sequence. Each drawing is part of a personal narrative dealing with secrecy, realization and awareness. This series also questions the morality of concealing information for the sake of conservative and religious biases.

**Untitled**
Barbara Wilson  
*Chris Tyllia, Art*

I enjoy exploring the natural world living in a rural environment has provided me with opportunities for reflection how I see colors, textures and movement. Having a family has created time to observe, nurture, and redefine beliefs and to find humor and pleasure in simplicity. Working with clay satisfies a deep rooted desire to make things from raw earthy materials. The ability to explore the creative process is liberating as well as frustrating. There is a unique joy that comes from successes and failures offer opportunities for growth. Solving problems, coming up with new ideas and the complexity mastering materials and skills is rewarding. The goal is to work towards independence and a sustainable lifestyle, finding satisfaction in my work and exploration into the creative possibilities. I desire to transfer a spirit of hope that may inspire others to enjoy creating, doing, viewing and discovering their abilities to enjoy art.
Oral Abstracts

A Clash of Literary Titans: George Orwell's criticism of W. B. Yeats

Justin Abel
Anthony Flinn, English

In a 1943 review, later titled W.B. Yeats, George Orwell assesses the art, philosophy, and personal character of Yeats to determine the poet’s alleged fascist political bent, or fascist “tendency.” Orwell’s name and fame as an author are fortified indelibly to anti-totalitarian polemic. His novels Animal Farm and the dystopian 1984 standby as two of our cultures most familiar warnings of the nightmare world described at its birth in Yeats’s famous poem “The Second Coming.” Orwell states in the article that civilization has, in reality, finally moved into this terrible world, and he cites the poem as “a disquieting symptom.” Orwell defines Yeats’s fascistic tendency, yet he also cites Yeats’s poetry by memory within the article. Orwell’s credit to Yeats’s artistry is not negated by the concern for the poet’s authoritarian thinking. Rather, Yeats’s mastery accentuates the concern as Orwell quotes Menon; “If the greatest poet of our times is exultantly ringing in an era of Fascism, it seems a somewhat disturbing symptom.” This symposium juxtaposes the ideologies of both great writers.

Structural Analysis of Tennis Racquet using FEA Method

Samuel Andres
Awlad Hossain, Engineering and Design

Many different characteristics can affect the performance of a tennis racquet. Whether it is size, shape, material, weight, or balance, aspects of a racquet can change to fit the individual’s preferences. These aspects can also affect the various loading that happens during a match, including tension from strings, and impact from a tennis ball, which all provide some sort of deformation and stress. Using Finite Element Analysis (FEA) software, which can take complex structures and generate data based on various parameters, a comparison of tennis racquet characteristics can be made. Utilizing FEA software through ANSYS, tests were done where racquet geometry and various material properties were input, and structural displacement and reactions due to forces were examined. The results provide evidence that the racquet shape and what it is made of are all things to consider when trying to create that “perfect racquet”. If a player wants certain specifications, using FEA method can allow them to see what conditions it would take to meet their needs.

How can mobile technology help to reduce the incidences of cyberbullying?

Veronica Angel
Sharon Laing, Psychology

Cyberbullying is prevalent among youth and adolescents. The anonymous characteristic is appealing as it releases inhibitions to act in an aggressive manner. The objective of this report is to assess mobile technology as a tool to provide resource and support to address cyberbullying. We assessed the Youth Risk Behavior Surveillance System (YRBSS), a national database that tracks six health risk behaviors that contribute to death and disability in youth; we looked at the proportion of youth who reported “ever been electronically bullied.” We also reviewed literature on the social and cultural causes and consequences of electronic bullying. Finally, we assessed the mobile health promotion literature to understand how short messaging service (SMS) can help. Cyberbullying is a nationwide phenomenon with 16% of persons reporting a recent experience. 75% of 14-17 year olds and 95% of 18-29 year olds text and 33% of teens own cell phones. An opportunity exists therefore to intervene with youth via social networking support and education about the implications of bullying.
La Mujer en la Novela Policial
Jacqueline Arana
Natalia Ruiz-Rubio, Modern Languages, Literature and Philosophy

Esta investigación explora la producción de novela policiaca y novela negra escrita por mujeres hispanas. Desde una perspectiva femenina ofrecen una crítica social, en particular sobre la desigualdad de género. Como parte de mi investigación, hice un recorrido por las características del género de la novela negra y las obras más significativas, enfocándome en la literatura de la escritora española, Alicia Giménez Bartlett y su visión de la sociedad.

English Translation: This research explores the topics of Hispanic women writers in the genre of crime fiction. Providing a feminine perspective in social criticism and gender inequality. I did a literature review across Hispanic writers of crime fiction, focusing in the writings of Spanish author, Alicia Giménez Bartlett and her view of society.

“Time for a Nap”
Pauline Baird
Matthew Hodgson, English

Getting enough sleep is often an over looked necessity. Research shows that by incorporating a nap into our daily lives we will be able to enhance the things that we value most in our society. Often we think that the only way to fulfill all of our obligations sleep must be sacrificed. How many of us have pulled all-nighters to finish a project, study for an exam or just get homework done? However instead of helping us be more productive, cutting in on our sleep can actually be more detrimental. Napping will increase our safety, productivity, cognitive abilities and emotional well-being. I have investigated scientific studies by Sarah, Mednick Phd, Matthew P. Walker, The Center of Disease Control, The National Sleep Foundation and other scholarly journals to show how taking advantage of this free natural resource will benefit our society. The good news is that taking a nap isn't as impossible as it may seem. In fact a nap can be tailored to meet your specific needs. It can range from 10 minutes to two hours and be completely guilt free.

Major League Baseballs Markting Stratgies to the Chicano Demographic
Nathen Bauer
Martín Meráz García, ChicanoEducation

Professional sports, such as the National Basketball Association, Major League Baseball, and the National Football League, in the United States are billion-dollar industries; Chicanos are one of the fastest growing demographic in the U.S. This paper will look at the marketing strategies of Major League Baseball in targeting Chicanos and Latinos by looking at the history of inclusion and the lack of these two groups in baseball. This study will also address how both groups are currently shaping the MLB that we see today. Starting with: the large part of opening day rosters are that from Latin America (30 %), and a majority of the prospects in the minor, who are also from Latin America (50%). Finally this paper will explore the quality and salary of Chicano and Latino players in the league and to what extent, if any, they are unrepresented.

Mental Health Outcomes as a Function of Breastfeeding Experience
Danielle Bentow
Kayleen Islam-Zwart, Psychology

Little is known about the impact of breastfeeding on depression and other mental health variables. The purpose of this study was to investigate the psychological benefits of being breastfed as an infant. It was hypothesized that those who were breastfed as infants would report lower levels of depression and anger than those who were not. It was also anticipated that maternal presence in the home would interact with breastfeeding to impact adult mental health. College students (n=323) from a regional University in the Pacific Northwest voluntarily completed a packet of questionnaires
including the Center for Epidemiological Studies Depression Scale and the Clinical Anger Scale. Results showed individuals with no history of having been breastfed or having their mother in the home reported the highest levels of depression and anger, followed by individuals who were breastfed without a mother in the home, and individuals with a mother in the home regardless of breastfeeding history. Results highlight the importance of breastfeeding and maternal presence on psychological well-being.

Friedrich Nietzsche's View on the Genealogy of Morality
Samantha Berry
*Thomas Hawley, Government*

In The Genealogy of Morals, Friedrich Nietzsche gives a history of where he believed morality came from and the reasons why it was created. The morality we have today has been morphed from a morality once practiced by the Jewish, or Christian, religious group. This morality was formed by a slave-master relationship by inverting the ideas of good and evil. What was once thought of as good is now the opposite. By doing this the slaves created a morality in which to seek revenge against their slave masters. This morality is created out of revenge and resentment, rather than the idea that the Jewish morality was created from something good. In order to gain the ultimate revenge against the slave masters, the Jews rose up in a slave revolt in morality which brought about a set of moral standards to which the masters would not only be subjected during their life on earth, but throughout their eternal life as well. This morality would send the slave masters to an eternal hell, giving the Jews their ultimate revenge against them.

Landscape Painters of the Boroque Period: Claude Lorrain and Jacob Ruisdael
Dallin Bifano
*Barbara Miller, Art*

This paper investigates the relationship between the ideal landscape and the artist's composition by looking at the paintings of Dutch Baroque painter Jacob van Ruisdael and comparing it to the work of his French contemporary Claude Lorrain.

Interning Abroad Through the Benjamin A. Gilman Scholarship: Experiencing technical communication in Shanghai
Btandy Bippes
*Elena Axton, Office of Global Initiatives*

Join a reflection and discussion of a unique internship in Shanghai. Learn about internship, studying abroad, cultural considerations in technical communication, home stay abroad, the agents involved, language courses, how to ask for funding to make it all happen, and addressing illness abroad. Considerations of housing and transportation are elements of interning abroad as an EWU undergraduate set off to Shanghai. Explore the editing of a bi-lingual web site and marketing brochure, branding a new product, and developing team building training for Top 500 companies in China.

The Impact of CPS and Special Education on Adjustment for Male Inmates
Sara Blessington
*Kayleen Islam-Zwart, Psychology*

Rates of inmates with special education assistance are high; similar rates are shown for individuals coming from a Child Protective Services (CPS)-involved background. Additionally, research suggests that individuals with a history of special education assistance and placement in foster care as a child are more likely to struggle as adults. Adjustment is a
necessary and expected process when encountering change; however, no research has been identified that examines how these historical experiences might impact reaction and adaptation to incarceration.

This study examined how a history of involvement with Special Education and CPS in childhood affects male inmate upon jail incarceration. Participants voluntarily completed a clinical interview and a packet of questionnaires. The outcome of the interview and questionnaires showed a history of CPS involvement resulting in significant difference for physical adjustment and approached significance for external and internal adjustment. In contrast to that hypothesized, males with no history of CPS involvement as children reported significantly more internal adjustment problems than men with CPS involvement. Results have implications for understanding of the impact of early childhood interventions and the process of adaptation for adults when incarcerated.

The Acculturation Process of Chicanos/as in the United States
Rachelle Boyette, Josh Knigge
Martín Meráz García, Chicano Education

Crossing the border into the United States is difficult for Chicanos. Those that manage to cross the border must learn to adapt to the American culture and the language. This process is called acculturation. Yet, what happens along the way of acculturation? This paper will be utilizing peer review papers, as they have provided an in-depth analysis on the subject and government reports to help further my research in this topic. The paper will also explain the process of acculturation and the factors that are associated with it: lifestyle changes, risk factors, differences between genders, as well as why Chicanos/as decide to immigrate to the United States. Lastly, there will be a critical analysis as to how the acculturation process can become less difficult for immigrants who journey into the United States. Immigration policies will be looked at as well as how the United States can create more outreach programs for these immigrants who come into the country.

Distribution and Abundance of Owls on Turnbull National Wildlife Refuge: Effects of prescribed burns
Christopher Brady
Margaret O'Connell, Biology
Suzanne Schwab, Biology

Prescribed burning dynamically changes plant and animal assemblages. My study examines how successional change to ponderosa pine forests by prescribed burns affect owl biodiversity on Turnbull National Wildlife Refuge, Cheney, Washington. Owl calls will be passively collected from five burn intervals, each represented by three burn sites per burn interval: unburned controls, burned < five years, burned at 10 years, burned within 14-16 years and burned > 20 years ago. Burn sites will contain one transect with at least two acoustic stations, one autonomous digital recorder per station, that will record owl calls for 10 minute periods with 5 minute breaks between recordings beginning one hour prior to sunset and ending one hour after sunrise. I will use nonparametric tests to compare mean species richness and relative abundance of identified owl species between treatments and stepwise regression of the habitat metrics on the relative abundance of owl species by treatment type. During preliminary sampling great horned owl calls were collected through late winter and early spring in all treatment areas. I predict that owl biodiversity will be highest in the burned within 14-16 years treatments.

US Schools Falling Short of Chicano Needs
Tom Brooks
Martín Meráz García, ChicanoEducation

Using US census data, and public and private educational studies on various aspects of the United States educational system my paper will show that the Chicano population in the United States is often at a travisive disadvantage compared to other sectors of the population. According to the research studies much of the Chicano and Hispanic populations live in low income and poverty stricken school districts. While on paper schools with predominantly Chicano student population
appear to be as well funded as the more affluent school districts continue to systematically fail to meet the needs of this community. This study will show how the government fails the Chicano/Latino population by not providing them access to the best teachers, modern quality schools, fail to tackle the language barrier and a safe and effective learning environment in the troubled inner city school system where they attend. My paper provides recommendations on how to fix the vast inequality in the educational system and how to evaluate any applicable results.

**Predicting Medal Count in the Winter Olympics**  
**Jasmine Burns, Samuel Wolkenhaur**  
**Christian Hansen, Mathematics**

Using cross-sectional data, a linear regression model will predict the average amount of medals won per team based on factors such as per capita GDP, population, weather patterns for each country (average annual snowfall, Mediterranean countries), health of the population and the countries that hosted the olympics. Data collected for the regression consists of 27 randomly chosen participating teams across 3 successive terms of Olympic participation. The years included were 2006, 2010 and 2014. Results from the regression showed that significant variables included per capita GDP, population, weather conditions, health rank of the country, whether the country was a host for the sport and an interaction between both health and GDP.

**Implications for Happiness**  
**Kenzie Bush, Benjamin Lister**  
**Nick Jackson, Psychology**

The past two decades have witnessed a proliferation of research on personal happiness, largely through the newly formed sub-field of positive psychology, but also through the fields of sociology and economics. Large scale national surveys have identified domains which contribute to a person’s overall life-satisfaction. One such survey, conducted in the United States, called the happiness initiative has identified domains of happiness such as material well-being, time balance, social support, government, and work experience. The Happiness Initiative Survey can be described as "ecological" from a psychological perspective. This survey was administered to the EWU and broader Cheney community in spring of 2013. Our presentation reports the results of that survey, compares the perspectives of students, faculty, staff and Cheney community residents with national survey results, and discusses the future implications for increasing personal happiness.

**Manufacturing Process of a Quadcopter**  
**Yoora Byeon**  
**Jason Durfee, Engineering and Design**

Because firefighters can’t fully rely on their instinct and jump into the fire scene, they use newest technology to help them gather information first to get them prepared. One of the examples is a drone equipped with a camera, a gyro sensor, and a heat sensor. A fire-drone can be flown with using a tablet and controlled with a fingertip. Unmanned Air Vehicles (UAVs) can be modified to fulfill the need of the user by having to manufacture or design individually. Eastern Washington University’s ASME SPDC Design Team’s approach of manufacturing quad copter will be illustrated as well as mass production scenario of how EWU’s Design Team’s steps can be applied with introduction of how different processes of production on quad copter, such as casting, molding, and rapid manufacturing can be used in quad copter fabrication. Then, conclude with a brief discussion on which of the introduced ways of manufacturing can be most useful in building UAV’s in real life to assist firefighters.
Sociology of Software
Charles Byers
Todd Hechtman, Sociology

Software interfaces are everywhere in our lives. Our interactions with them have rapidly brought about a unique new set of competencies and shared knowledge, and have changed the way we work, interact, and even identify ourselves. This project examines the social role of computer software, using sociological concepts from science & technology studies, media studies and the sociology of identity. In addition to drawing from published research, the project will use interviews with software developers and end-users to explore software as a site of communication, and to ask how this new technology may serve to challenge, or to reinforce, the existing structures of our social world.

Creating Engaging & Interactive Ergonomic Modules via Adobe Premier and Captivate
Sean Campbell, Louie Cerenzia
Dan Anton, Physical Therapy

E-learning modules are often utilized for continuing education but rarely are they engaging and interactive for the learner. The purpose of the presentation is to describe the process and ideas that went into making a potentially more engaging, interactive ergonomic module for practicing dental hygienists (DH) in the state of Washington. It was essential to gather input and opinions from DH on what kind of learning module and educational material they would benefit from. After information was obtained, a script was written for the modules. Using this script, videos and pictures were taken. Camera angles, lighting, humor, and music choice are examples of some things that were taken into account when making videos. The module was produced using Adobe Captivate in which interactive slides, quizzes, and media were incorporated. Self instruction was utilized to establish a basis for constructing an engaging module. This included reading video production books and lynda.com. Our initial module archetypes were presented to DH at a follow-up focus group and received exceptional feedback.

The Multifaceted Project: Black Women Telling Their Stories
Lauren Campbell
Jeff Stafford, Communication Studies
Mindy Breen, Visual Communication Design
Travis Masingale, Visual Communication Design

The Multifaceted Project is about providing a platform for Black women to have their voices heard, opening up the flow of conversation around and about them, and the struggles of creating an inclusive environment about an exclusive topic.

Guns, Germs, and Steel: A holistic history through a scientific lens
Logan Camporeale
Ann Le Bar, History

Jared Diamond's original success as an author came from his book Guns, Germs, and Steel for which he earned a Pulitzer Prize in the category of general non-fiction. For the purpose of this research Guns, Germs and Steel was used as the primary vehicle for determining the source of Diamond's rapid success and popularity. Furthermore the reactions of scholars, James Blaut, an anthropologist, Bruce Fetter, a world historian, and J.R. McNeill, an environmental historian, in response to Guns, Germs, and Steel assisted in formulating three identifiable factors that led to the popularity and success of Diamond's work. First, Diamond authored a holistic world-history spanning nearly the entirety of human civilization, a task rarely accomplished by historians. Second, Diamond rejuvenated the study of history with revolutionary scientific elements. Thirdly, Diamond created controversy amongst scholars with the perceived eurocentricity of his argument. For these reasons it is important to promote fellow students to read Guns, Germs, and Steel in preparation for Diamond’s lecture this fall.
Mastering Mod_Rewrite in mere Minutes
Andrew Canfield
Stu Stiener, Computer Science

Known primarily for creating clean urls and treated as voodoo, Apache's mod_rewrite is far more powerful and far less mysterious than many would believe. In this talk we will explore how to master mod_rewrite by examining what page requests consists of, how to use rewrite conditions, directives, and variables, and how to leverage regular expressions to modify requests for clean urls, preventing hot linking, ensuring secure server layer (SSL) is used, improved security, access control and much, much, more.

Immigration Status Affecting Children’s Cognitive Development
Minerva Cardenas
Martín Meráz García, ChicanoEducation

Many people need to understand the issues of immigration are critical to understanding the future of education for Chicanos in the United States. Immigrants come to the U.S. to give their families a better life, such as better education. Scholarly stated in “The Future of Children” 21% of children who are or come from undocumented parents live in high rates of poverty. Just like Arizona’s law SB 1070 many states like Georgia, Utah, Indiana, South Carolina, and Alabama have approved similar anti-immigration laws. Even though the government has promised to pass immigration reform, they have failed in keeping this promise. According to the American Congress site over 46,000 parents of U.S. citizen children were deported in the year of 2011 alone. Leaving many families torn apart. Children and adolescents fear that they might not get to see their parents anymore, stressed with school not being able to focus some even take the fast route and drop out. This paper will show the detrimental effects in children resulting from their parents’ immigration status and the challenges they face to achieve a basic education in states that have passed or are in the processes of passing an anti-immigration laws similar to SB 107.

Sexual Orientation and Education Environments: Difference between high school and college
Phaedra Castro-Valdovinos, Yesenia Lazaro, Rachell Stenson, Angela Rak, Andrew Baldwin
Theresa Martin, Psychology

This study was done to compare heterosexual's perspectives and behaviors towards the lesbian, gay, bisexual, and transgender (LGBT) community in high school vs. college, as well as LGBT's experiences with heterosexuals in high school vs. college. Out of the 134 Eastern Washington University student respondents, 91% were heterosexuals and the remaining 9% were part of the LGBT community. Using paired sample t-tests to compare means between high school environments and college environments within each the heterosexual population and the LGBT population. Basic results showed that LGBT people do feel more comfortable in their college environments than they did in their high school environments, while also experiencing less negative behaviors from the heterosexual population in college. Heterosexuals feel slightly more tolerant of LGBT's in college and report slightly less negative behaviors done towards LGBT's in college. Overall, the findings supported our hypotheses. The study lacked in LGBT respondents possibly due to inadequate LGBT recruitment.

Substantial Improvement of Zebrafish Egg Storage in Oviductal Fluid Under a Controlled Gas Environment
Megan Chastain
Charles Herr, Biology

Zebrafish (Danio rerio) embryos have long been used as a developmental model. However, unlike many other fish species, unfertilized zebrafish eggs are notoriously sensitive. In plain water eggs last 5 minutes, and in saline based synthetic oviductal fluids eggs last a few hours. In an effort to extend this window of workability, we tested the viability
of freshly stripped zebrafish eggs under three treatment regimes. Eggs were incubated at ~4 °C in rainbow trout oviductal fluid (RTOF), RTOF under blood gas atmospheric conditions (7% CO₂, 7% O₂, balanced N₂, pH 7.2), or RTOF buffered with HEPES to physiological pH (7.2). Egg viability was assessed at 4, 8, and 24 hours by fertilization. Only RTOF under blood gas atmospheric conditions significantly extended egg viability to 24 hours. Additionally, significant improvement in the HEPES treatment at 8 hours suggests that incubation in RTOF may repair damages caused by the stripping process and ultimately improve egg quality.

**Arts in Healing in Pediatric Oncology**
*Tara Clemons, Lisa Welk, Wileen Rigor, Allison Vlcek, Tristin Glennon, Mary Ann Ehrcott*  
*Greg Wintz, Occupational Therapy*

The Arts in Healing (AIH) program at Sacred Heart Medical Center (SHMC) located in the pediatric oncology unit provides an outlet for communication and expression while focusing on wellness and well-being; physically, mentally, emotionally and spiritually. This research study begins the stages of program evaluation of the AIH program in order to determine its merit, value, and worth. Evaluating this program will help determine the funding, sustainability, and benefits to participants engaging in the art process. As a means to sustain and expand an arts program within a hospital setting it is essential to have evidence-based research to support the healing benefits affirmed through the behaviors and interactions between the children and the art process and facilitators themselves. The lack of research in program evaluation for art programs within a healthcare setting has contributed to the lack of availability of such programs and the impact that it has on this population. This research study was carried out through a qualitative method intrinsic case study design in order to examine the overall components of the SHMC AIH program. Data was collected through participant observation and examined through a thematic data analysis.

**Chicano Home Life vs. American Home Life: Do the cultures mix?**
*Zorrina Crago*  
*Martín Meráz García, ChicanoEducation*

When Chicano families begin a new life in America, we can predict that most families keep the customs and values of the previous Spanish speaking countries they resided in. For example, celebrating womanhood through Quinceañeras or honoring loved ones that have passed away through the Dia de los Muertos holiday. With the change in culture of the American society, do Chicanos eventually see themselves using American customs in their own home? And if so, what specific customs or everyday routines are carried out in American culture? How different or how similar is my own home life, as a White American, to the home life of a Chicana/o American. By utilizing Chicano individuals’ experiences, specifically through Chicano Scholarly journals that surround this topic, and through the Latino National Survey, I will show the interaction of these two cultures and just how much of the Chicano culture is kept alive after moving into the United States.

**The Psychic Health of a Life worth Leading and the Necessary Role of Obedience for Nietzsche**
*Betty Craipo*  
*Thomas Hawley, Government*

This research project demonstrates Friedrich Nietzsche’s intention to direct the weak as well as the strong toward a life worth leading during each individual’s lifespan, by way of a long-term obedience in a focused direction, unique to each individual. Nietzsche identified barriers of the social order that hinder the flourishing of one’s psyche and ascertained the steps necessary for one to hurdle those barriers. This research entailed reading much of Nietzsche’s work and numerous critiques while collaborating with my mentor, Dr. Thomas Hawley, when Nietzsche’s philosophic caginess became overwhelming. Ultimately, Nietzsche concluded that the type of obedience chosen by a person, determined the health of that person’s psyche. However, Nietzsche’s words have held many contradictory interpretations due to constant
misreading. My research proposes that what Nietzsche did not say should be communicated as often as what Nietzsche did say, and that Nietzsche directed humans toward long-term obedience in a focused direction in order to obtain the psychic health of a life worth leading.

Self-Consciousness: The Relationship Between Society and the Voices in Your Head
Chad Creighton
Theresa Martin, Psychology

This proposal examines the cognitive and affective responses of possibly the most basic element of living in a civilized society: the demand to fit in. The Self-consciousness Scale (Scheier & Carver, 1985) will be used to determine if there is a relationship between social anxiety and cultural orientations of independent and interdependent self-construal, as well as a measure of socialization history. Since research has shown that responses to stimuli are primarily automatic and intuitive (Kahneman, 2011) and social identity has been correlated with well-being, it is predicted that high levels of interdependent self-construal and/or high socialization history will be positively correlated with social anxiety, suggesting that social discordance may be more likely to occur in independent cultures than interdependent cultures.

Initial Response of Riparian Vegetation Following Dam Removal on the Elwha River, Washington
Erin Cubley
Rebecca Brown, Biology

Riparian zones, the interfaces between terrestrial and aquatic ecosystems provide various ecosystem functions, but are altered when rivers are dammed. Dam removal is becoming more prevalent and is predicted to restore natural flow and sediment regimes to riparian systems and increase substrate heterogeneity and vegetation species richness. The largest removal to date is of the Elwha and Glines Canyon dams on the Elwha River, Washington. My objective was to determine the response of riparian vegetation and substrate following removal. Before removal, species richness was lower in the river reaches below the two dams. I hypothesized that species richness would increase below the dams and the release of sediment from the reservoirs would create new substrates following removal. My results showed that in the first year, species richness decreased below the dams after removal. The low richness downstream could be influenced by deposited sediment from the former reservoirs, which created new substrates, particularly, open bars. Early assessments of reservoir soil show it to be low in nutrients, organic matter, and lacking microbial communities. The restoration of the natural flow regime, seed dispersal, and soil development on new substrates may increase species richness, however, it may take years to decades.

Relationship Between Literature and the Visual Arts During the Seventeenth Century
Remelisa Cullitan
Barbara Miller, Art

There are numerous branches in Art. These branches can intersect and cross one another thereby influencing the turns and outcome of one another. When they do make contact it makes Art all the more interesting and intricate. Taking a look into different time periods and into the various works of the time can enhance one's understanding of a particular era. The Seventeenth century is rich and teeming with the creative expressions of individuals such as Bernini, Donne, and Crashaw to name a few. There are three areas to look at with the relationship between those who wrote creatively and those who produced visual artworks. There were those who have a foot in both creative realms and how that affected their own work pieces. There were those who inspired, whether positive or negative, other artists and writers with their works. Then there were the business relationships between literature and the visual arts and the benefits both accrued for another.
Friends with Benefits: Studies 4 and 5
Katrina Daniels, Laura Ertz, Allie Groves, Jason McAllister, Darian Andrew
Theresa Martin, Psychology

Movies such as “No Strings Attached” and “Friends with Benefits” have captured the attention of many people with the promise of sex without the entanglement of romance or commitment. As part of an on-going series of research pertaining to Friends with Benefits Relationships (FWBRs), this study will combine the efforts of studies previously done by this research lab, while adding questions that cover an expanded scope pertaining to new demographic groups. Specifically, we are particularly interested in the perceptions of the lesbian, gay, bisexual, transgendered community and non-college student same age cohort. Our research investigates the perceptions regarding close relationships in general with an emphasis on FWBRs and whether personality traits correlate with these perceptions. We will also investigate the motivation for participating in a FWBR, which partner initiated the relationship, what types of communication patterns and topics are discussed within the relationship, and what outcomes have resulted due to participating in FWBRs.

Satisfaction in Intimate Relationships
Katrina Daniels, Allie Groves, Laura Ertz, Trent Leach
Theresa Martin, Psychology

This study focused on sexual satisfaction specifically within intimate relationships. There were originally 118 college students who participated, most of whom were psychology majors. Fourteen respondents were eliminated due to incomplete information. Respondents’ age ranged from 18 to 46 and 79% were females. Respondents were given an online survey that consisted of 102 questions including demographics, the Colour of Love Scale (Hendrick, 1986) and the Pinney Sexual Satisfaction Inventory (Pinney et al, 1987). We predicted an interaction between relationship commitment and positive attitudes regarding sexuality on the dependent measure of sexual satisfaction. The interaction was not supported but a main effect for commitment on sexual satisfaction did emerge.

A Phenomenology of Our Social World
David Denenny
Kevin Decker, Philosophy

I will first illustrate, albeit very briefly, the core tenets of Heidegger’s philosophy, as presented in Being and Time, along with Merleau-Ponty’s basic concerns in order to demonstrate the goals, and relevance, of Phenomenology. Martin Heidegger, in his magnum opus Being and Time, posited that the “they” is an existential, and is therefore a fundamental characteristic of Dasein. The “self” of everyday Dasein is said to be the “they” self. Heidegger’s notion of authenticity depends upon this concept of the “they.” My studying of Maurice Merleau-Ponty’s great work, Phenomenology of Perception, has lead me to the conclusion that Heidegger’s concept of the “they” does not correspond with our lived social experience. My critique of Heidegger rests on both Merleau-Ponty’s insights, and on my creation of a unique concept which is more acceptable in light of Merleau-Ponty’s philosophy. The idea of the “they” is also necessarily preserved and reconfigured. Heidegger’s project will then be radically reformed while remaining within its framework.

Exercise Dosage and Pelvic Floor Muscle Function in Young Women With and Without Urinary Incontinence
Brianna DeWitt
Patricia Nelson, Physical Therapy

Approximately 38% of young, healthy females who have never been pregnant experience urinary incontinence (UI). Some research suggests there may be a correlation between the amount and intensity of physical activity and pelvic floor muscle dysfunction leading to UI in this population. This study used trans-abdominal real-time ultrasound imaging to describe pelvic floor performance in forty-eight females aged 18-30 (n=11 with reported UI, three of whom reported experiencing moderate to severe UI). While vigorous exercise was not significantly related to presence of UI, pelvic floor
contraction performance was significantly worse in those women with UI. These findings suggest that education and training may be beneficial in this population.

**Roberto Clemente's Impact on Major League Baseball**

Damen Diaz  
*Martín Meráz García, ChicanoEducation*

If you were to look around the Major League Baseball organization it would be very apparent that there is much diversity amongst the players. And by delving deeper you will find that Latin players are accounting for nearly 28 percent of Major League rosters. So maybe it isn't just an American pastime after all. Sources such as “Society for American Baseball Research” show an exponential growth through the years for Latin players. However this wouldn't be the case if it weren't for a player name Roberto Clemente who was an icon for all Latin players alike. Clemente was the first ever Latino to ever be inducted in to the Hall of Fame. And side from his efforts on the field he was also involved in many charities to give back to his Latin roots. On the basis of my Hispanic heritage and deep passion for baseball I will further explain the impact he had not only Baseball but the nation as well. And how his legacy has lived on and influenced other Latin players. While integrating information from sources such as MLB.com and NBCsports.com to further explain the influence of Roberto Clemente.

**Perception of Money**

Haley Dolman, Ayanna Jacobs Kalyan, Adrienne Johnson  
*Theresa Martin, Psychology*

The purpose of this study was to investigate main effect for materialism such that people low in materialism are happiest main effect for gender in- that women are happier and interaction for materialism and gender such that men with high materialism are least happy. The design used in this study was 2 (gender)x 2 (high v. low materialism) independent groups factorial design. The dependents measure used in this study were feelings of subjective well-being as it relates to money of college students. Our research group recruited 139 Eastern Washington University students who were willing to participate for extra credit class points. Participants gained access to the online survey using the Dept. of Psychology's Sona Research Management System. The results of this study were that people with low materialism are happier than individuals with higher materialism.

**Pecha Kucha: NGO Imperialism in Latin America or Yanquis Go Home**

Melissa Doty  
*Jeff Stafford, Communication Studies*

In post-colonial Latin America a new imperialist agent is lurking under the guise of altruism. My paper looks at previous research on agency, NGOs, and Latin America and links a personal case study for illustration. This is a call to action to look at NGOs involvement in Latin America through a critical pedagogical lens.

**Death, Disease, and Cannibalism: How drought and starvation contributed to the near failure of Jamestown during the Starving Time of 1609-1610**

Cheyenne Dunham  
*Joseph Lenti, History*

The winter of 1609-1610 in Jamestown Virginia brought a staggering amount of fatalities to the new colony. Over 500 settlers were lost during this period of time. Multiple factors contributed to the ailments of Jamestown during this time, but I have attempted to show how drought played a key role in the Starving Time. Starvation and drought came together
to initiate other conditions that would lead to increased death and disease. Other topics considered are the consequences of these extreme conditions and the reactionary behavior of the colonists which includes cannibalism. Recent archaeological findings and modern studies using tree ring dating is incorporated into the study to support modern evidence of the significance of these environmental extremes in early Jamestown.

**Tonneaupy**
Connor Elder, Garrett Husky, Caleb Mazzola, Chase Schmidt, Jade Panday, Jiaxiang Wang  
Martin Weiser, Engineering and Design  
Awlad Hossain, Engineering and Design

In searching capstone projects, a suggestion was made by a friend of the group that he has always wanted an accessory for his pickup truck giving him the sleek look and fuel savings of a tonneau cover, while not limiting the storage in the bed of his truck. As such, we have designed a new product for the automotive industry that will be marketed to light duty truck owners. The product, called a Tonneaupy, will be a combination of a pickup bed tonneau cover and a hard top canopy. The top cover and frame, made primarily of aluminum, will be mechanically raised and lowered to suit the needs of the consumer via a device known as a whiffle tree, similar to that found on a tent camper. There will be a telescoping arm in each corner operated by wire cables and pulleys connected to the whiffle tree. Removable sides constructed of canvas will be attached using industrial snaps and zippers after the device has been placed in the canopy position. Finite element analysis has shown that our design will easily withstand the loads we anticipate. The retail cost of this device is estimated at $2,000.

**Race and Capital Punishment**
Katherine Elliot, Mitchell Koonz  
Christina Torres García, Chicano Education

Empirical research has stated that capital punishment is a racially biased process. In our findings, most of the participants in our survey knew little to nothing about the death penalty, yet some of them were still supporters. In our research; however, has brought us to hypothesize that there is a racial bias when it comes to the death penalty. Death rows across the country are highly populated with African Americans and those of other minorities; their ratio is in excess of their ratio in the broader population. We have also found that not only race but socioeconomic status plays an important role in the charging and sentencing decisions regarding capital punishment cases. Empirical research demonstrates the point that African Americans or other minorities that were being prosecuted against a white victim, especially a white female victim, were more likely to receive capital punishment than a white defendant. Regardless of whether the decisions are made with unconsciously due to stereotyping, or with a conscious bias in mind, the justice system is not completely impartial racially.

**The Dancing God**
Erick Erickson  
Thomas Hawley, Government

This presentation will explore how it is that reason and nihilism are linked. Nietzsche rejection of reason as a value will be explained. It will be clearly shown that an absolute belief in pure reason is not the pinnacle of thought that traditional Western philosophy has made it out to be. Reason while being a useful tool, cannot address all facets of existence, and a belief in reason is a kind of faith that is irrational in itself.
Gender Differences in Digit Span Recall
Danielle Foster
Kayleen Islam-Zwart, Psychology

A key part of intelligence is memory, the ability to recall information provided. Studies have shown that women have a better ability to recall information than men, possibly due to women having a larger and more active hippocampus, which is largely responsible for memory recall (Understanding Ourselves, 2007). The purpose of this study was to delve deeper into the battle of the sexes with regards to working memory specifically. Participants were 48 females and 27 males taking one or more psychology courses at a regional university in the Pacific Northwest. Participants were administered a battery of neuropsychological tests including the Digit Span subtest of the Wechsler Adult Intelligence Scale – Fourth Edition (WAIS-IV). Mean age of participants was 22.41 years ($SD = 7.53$). A multivariate analysis of variance (MANOVA) was used to compare gender differences in longest digit span forward, longest digit span backward, and longest digit span sequencing. Results showed a significant difference between the genders only on the longest digit span sequencing tasks. Results of this study are consistent with previous research, but further examination is necessary to determine what is unique about the longest digit span-sequencing task as compared to longest digit forward and backward.

Morphological & Genetic Characterization of Triatome: Vectors of Chagas Disease in Texas
Heather Frady
Camille McNeely, Biology

Trypanosoma cruzi, the agent of Chagas disease, infects eight million people in the Americas. In studying the disease ecology and distribution of T. cruzi, it is critical to examine the insect vector, Triatome species (Reduviidae: Triatominae). There are seven known species of Triatoma in Texas, the most of any state. The objective of this study is to characterize the Triatoma species community in Texas using a combination of morphological and molecular-based identification. Specifically, we typed regions of the cytochrome B (CYT B) and ITS2 genes to distinguish species. We collected 452 individual Triatoma from around Texas, and the combined identification technique confirms species T. lecticularia, T. sanguisuga, and T. gerstaeckeri. Most individuals collected in TX are closely aligned with existing sequences published in GenBank. This project is establishing the molecular methods critical for identifying Triatoma when morphological identification is not possible and will contribute to understanding the phenotypic and genetic variation among Triatoma species.

Narcocorridos
Jaime Frausto-Cerna
Martin Meraz Garcia, Chicano Education

Corridos are songs that tell a true story about an event, these songs were written to express the importance of this hero or a heroic action. With time the music has evolved to include lyrics glorifying drug smuggling and extreme violence. Just like hip hop, Narcocorridos challenge the government by singing about their success in the drug business. I will utilize online newspapers, articles and lyrics compose and sung by corridistas themselves. Multiple artists have been ambushed and suffered terrible deaths resulting from the turf war the drug cartels have started and the songs and lyrics they compose. Factors leading to this violence are that cartels often sponsor the singers to sing songs about their own organization. The human and drug smuggling organization are the main industries for the Mexican cartels. These occurrences are what give the artist a story to sing about in his next song. My paper will show the form the cartels use the music to recruit other members and flaunt their power.
Nepalese Language Endangerment
Holly Frazier
Michael Zukosky, Anthropology

The diverse population of the South Asian nation of Nepal speaks approximately 126 languages, but many of the groups who speak languages other than Nepali, the national language, face challenges to their use within formal educational forums. Although action has been taken to preserve and protect the many languages of the nation, popular ideas in Nepal such as “one nation, one culture, and one language” advocate monolingualism. This has affected speakers of non-standard languages and has led to the extinction of at least 3 particular languages; 8 other languages have reached a critical point of endangerment. Unfortunately, Nepalese language endangerment is under-researched. To document and identify languages in Nepal that are increasingly threatened, this paper conducts a review of work by Nepalese anthropologists. This paper presses the need for research and argues that a multilingual language policy would help preserve the rich cultural diversity of Nepal's population.

Dreams Denied
Stephanie Fuentes
Martín Meráz García, Chicano Education

The case Plyler vs. Doe was a case in which the Supreme Court of the United States struck down a state law denying funding for education to immigrant children. The court held states could not discriminate against students enrolling in K-12 public schools based on their legal status. However, it never addressed public education beyond high school, which allowed states to create their own rules regarding undocumented students and higher education. In 2003 Washington State Legislature approved House Bill 1079 which helped make college education affordable for certain undocumented students by allowing them to pay in-state tuition. Currently, 17 states allow in-state tuition rates for undocumented students. Two states still prohibit undocumented students from enrolling at any public post-secondary institution. Undocumented students should have equal opportunity to higher education because it will provide them skills to become self-sufficient, contributing more to taxes, and rely less on state resources.

The Obstacles Chicanos Face in the United States
Maria Galindo, Berenice García, Joanna Gutierrez
Martín Meráz García, Chicano Education

When coming to the United States many immigrants think the biggest challenge they face will be leaving their families. Many do not realize the real challenge awaits them when they arrive in the United States. One of the main challenges they face is that of discrimination and overcoming negative stereotypes Americans use to describe them. Children are being raised to think these remarks are acceptable. In this paper I am going to provide information from personal blogs of experiences that have affected their everyday lives. This paper will provide evidence of the struggles they face with language barriers and the limited opportunities in employment and education. This study will show that regardless of how many miles of border are built and the many hurdles that are place before them, people from Mexico and Latin America will continue to overcome the many obstacles that are place before them in order to provide a better future for their siblings.

The Effects of Marijuana Use Prior to, and in Relationship to Reported Psychiatric Symptoms and Behavioral Issues of Prisoners while Incarcerated
Daniel Gallagher
Kayleen Islam-Zwart, Psychology

Abstract. The following is a survey of the literature on the effects of marijuana use prior to, and in relationship to reported psychiatric symptoms and behavioral issues of prisoners while incarcerated. Age of first use, age at progression to regular use, and use during the time period leading up to incarceration were considered. Participants were 162 inmates
incarcerated at a metropolitan county jail. Inmates completed a clinical interview with questions regarding marijuana use and a packet of questionnaires including the Brief Symptom Inventory (BSI; Derogatis, 1993). Analyses revealed a positive correlation between amount of marijuana use prior to jail incarceration and overall report of psychiatric symptoms on the BSI (r = .18, p < .05). There was no relationship between age of first marijuana use or age of first regular marijuana use and overall report of psychiatric symptoms. Recent reviews of the long-term effects of heavy marijuana use suggest several areas of concern. Key Words. Drug abuse, marijuana, incarceration, prisoners, behavioral issue, psychiatric symptoms.

The Effects of Intentional Cranial Deformation on Fontanelles: With a focus on Pterion
Nambi Gamet
Sarah Keller, Anthropology

The relationship between cranial deformation and variant sutural and fontanelle closures has been widely studied. The majority of studies agree on two general conclusions 1) cranial deformation probably does influence the formation of sutural/fontanelle closure in some way, and 2) the probable mechanism is increased pressure on sutures by intentional or incidental stressors, preventing normal closure. There are, however, scholars who conclude that there is minimal effect due to deformation, and variant closures are instead the result of genetic control. This study primarily observes the variable morphology developed at the site of the sphenoid fontanelle at the fronto-temporal/sphenoparietal articulation (pterion). It also considers effects at the bregmatic and lambdoidal fontanelles. The sample for this study is drawn from documented collections accessible through the internet and represents sites from a number of populations using a variety of deformation techniques.

Searching For the American Dream
Berenice García
Martín Meráz García, Chicano Education

Immigration is a controversial topic for both Chicanos and Americans. Many Immigrants put themselves through the danger of crossing the border into the United States so they are able to provide for their family. Immigrants only come to help the economy. I will use data and peer review articles that have analyzed the benefits or their lack of the North American Free Trade Agreement (NAFTA) to assess the effects on poor Mexican peasants. This paper I will address the detrimental effects of this treaty on families who have been uprooted from their traditional way of life and forced to migrate as a result of this trade agreement. This study will also provide information on the successful techniques currently being used by immigrants to be smuggled across the Mexico-U.S. border despite its militarization. Academic journals, government sources and other peer review sources will be used to inform this study.

Physical Risk Factors and Related Musculoskeletal Disorders among Dental Hygienists
Jayme Gilmore, Lindsay Robb
Dan Anton, Physical Therapy

Work-related musculoskeletal disorders (MSDs) are common for dental hygienists. In 2011, dental hygienists in Washington State were the only medical practitioners in the top 25 professions for claims related to the musculoskeletal system. This high rate of MSDs is related to the nature of their work. There are five risk factors that may predispose dental hygienists to MSDs. These include awkward postures, static postures, repetition, hand-arm vibration, and forceful exertion. By educating dental hygienists on risk factors as well as common MSDs associated with these risk factors, modifications can be implemented into the work environment to prevent or reduce work-related MSDs. The purpose of this presentation is to describe the risk factors and related musculoskeletal disorders in the dental hygiene profession.
Prevention Strategies for Dental Hygienists to Reduce Risk of Work-Related Musculoskeletal Disorders
Jayme Gilmore, Greg Mortensen
Dan Anton, Physical Therapy

Dental hygienists are exposed to several risk factors throughout the day that may predispose them to work-related musculoskeletal disorders (MSDs). Ergonomic principles can be applied to prevent or reduce these work-related MSDs. Ergonomics is designing the workplace to fit the worker. In order to maximize productivity and limit the harmful effects on the body, dental hygienists must learn how ergonomics plays into their profession. There are three main categories for prevention strategies. These include engineering controls, administrative controls, and personal controls. The purpose of this presentation is to describe and demonstrate examples of prevention strategies within each category for dental hygienists to utilize in practice.

Hispanic Identity Crisis in the United States
Marissa Gomez
Martín Meráz García, Chicano Education

Mexican, Hispanic, Latino/a, Mexican American, and Chicano/a are all common terms used to describe those from, or have decedents from Mexico. There are conflicted ideas between those who believe that if you are in America you should act as so, and those who came to America and struggle to keep their culture alive. Complications become prevalent when Latinos can barely identify themselves, let alone establish an identity within the American culture. The Latino population in America is uprising and official documents provide limited options for definition. This is because it seems convenient to group all Latinos together. This research paper examines the limited availability of labels accurately depicting Latinos whose ethnicity varies widely and the identity crisis among this population. This paper will also take a look at the definitions of all the available labels used to depict this population and the efforts made by them to conform to the American society. Finally this paper will analyze the US Census, public documents, and provided ethnicity choices given in official documents.

Are We All Terrorists?
Gregory Gormley
Majid Sharifi, Government

The purpose of this research paper was to investigate whether or not there is an international definition of terrorism, because terrorism is currently one of the most prominent global security issues today, which should necessitate a proper definition for the term. First, several definitions of terrorism from different actors were provided and then compared among each other. Next, the research focused on what the reasons may be as to why there are currently a variety of different definitions of terrorism, which was done by evaluating existing theories on perceiving terrorism. The research then led to finding out if the global community has ever attempted to create an international definition of terrorism, which was done by researching the efforts of the United Nations in their various responses to terrorist attacks. The research paper presents potential solutions to the lack of a universal definition of terrorism, before concluding that it is unlikely that an international definition will be reached due to the range of perspectives that actors view terrorism.

Introducing Chinese Philosophy Through the Yi Jing
Brolin Graham
Christopher Kirby, Philosophy

In 1721, Christian Wolff delivered a speech in which he praised the philosophical achievements of the Chinese. For this he lost his position at Halle. This incident showed how western thinkers dismiss the Chinese as being incapable of reason, even today. Certain factors within Chinese philosophy can be attributed towards this misconception. As Feng Youlan asserted, the Chinese used a negative method in their philosophical systems, rather than a positive method. Second, the
Chinese produced literature in a different manner, preferring to commentate on a canon as opposed to producing works. These distinctions provides insight for western readers investigating classical texts such as the Yi Jing. Examination of the Yi Jing, originally for fortune telling, reveal a sophisticated philosophical system. The Yi Jing demonstrates how the Chinese understood the universe, using the principle of yin-yang, producing a cosmology of opposite tensions and universal balance. Such studies of classical Chinese texts help illuminate underlying tensions in western thought.

**Does Mistletoe Infection in Ponderosa Pine Alter Fungal Endophyte Community Composition?**

*Amy Gray*

*Suzanne Schwab, Biology*

Current research suggests that fungal endophytes are ubiquitous within land plants, however their roles in plant function are not well understood. Whereas some fungal endophytes are known symbionts with their hosts, others may be antagonistic to their host or each other. Moreover, how fungal endophytes respond to stresses imposed on their hosts are largely unknown. Dwarf mistletoe infestation on ponderosa pine provides an excellent system to explore fungal endophyte response to parasite-induced stress in a natural system. In this study, we aim to 1) characterize differences in fungal endophyte communities in *Pinus ponderosa*, and 2) determine if the physiological stresses imposed by mistletoe infestation change these endophyte communities. To isolate fungal communities, we will sample needles from trees in both infected and uninfected stands of *P. ponderosa* in eastern Washington. Needles will be surface-sterilized, sectioned, and plated on fungal growth media. Emerging hyphae will be isolated and sequenced at the internal transcribed spacer region of the nuclear DNA. We hypothesize that mistletoe infected *P. ponderosa* trees will host a different fungal endophyte community than uninfected trees.

**Pet Chickens and Interspecies Communication**

*Desalyn Graybeal*

*Steve Stewart, Communication Studies*

*Galina Sinekopova, Communication Studies*

Despite the lack of popularity of studying the interspecies communication practices between pet chicken owners and their pet chickens within Communications, the subculture of pet chicken owning is growing in popularity and literature within the subculture written by its members abounds. Thus, why is this topic yet to be explored beyond that of what may be deems a miniscule extent by Communications scholars? The purpose of this study is to encourage research pertaining to interspecies communication practices of people and their pet chickens as well as the pet chicken owning community by those in Communications. This paper seeks to allow an insight into the the subculture of the pet chicken owner and relating interspecies communication practices via a first person perspective on the topic by a member of both the subculture and the Communications community. Additionally, a quantitative study with international response was conducted with a focus on the interspecies communication practice views of pet chicken owners.

**Returning to Graduate: The trials, tribulations, and rewards of being a non-traditional graduate student**

*Desalyn Graybeal, Heather Chandler*

*Steve Stewart, Communication Studies*

This presentation will be presented by two GSAs who are in their first year of the position in a social-science based department, which allows these individuals to teach classes. These individuals are non-traditional students who chose to return to school with the intention of creating better careers for themselves. Together they plan to address the rewards and trials to overcome as a non-traditional graduate student. This will primarily pertain to choosing to take the step towards working part time for the university and each teaching an introductory course in the field and what it entails. These topics will primarily allow the audience to understand the trials one will face in graduate school and the great rewards which will
Immigrating Children and Early Childhood Education
Sydney Green
*Martín Meráz García, Chicano Education*

Children from immigrant families are the fastest growing group in the United States and often encounter barriers when it comes to accessing academic programs to assist them to achieve parity with other children. The future of these children depends on early education programs. These factors are critical to these children’s success in school and in life. Although Early Childhood Education (ECE) programs have shown to have short term, and sometimes long term effects, research shows that overall; immigrant children have lower rates of participation than their native counterparts. Utilizing professional academic journals, and the U.S. Census, this research paper explores the programs created to make this transition among immigrant children a possibility. After an evaluation of these programs, this research will show that there is more progress to be done in this field of work. I will also provide a breakdown of the educational programs impacting these families and what the future of these programs will be. KEYWORDS- childcare, early education programs, children, immigrants,

Successes and Problems of the Hawaiian Language Revitalization Movement
Anna Greiner-Shelton
*Michael Zukosky, Anthropology*

The revitalization of the Hawaiian language is considered a success in the short term due to several factors including favorable government policies regarding revitalization, a large independent movement that formed the core of the language revitalization movement and provided the basis for Hawaiian language schools, and successful adaptation and use of the Internet and other multimedia sources to teach and promote use of the Hawaiian language. However, even though the revitalization effort has been largely successful, there are still several problems associated with the language revitalization movement. These problems include the authenticity of the version of the Hawaiian language being taught in schools and to students, government policies that were implemented that were not conducive to the retention and continued revitalization of the Hawaiian language, and the non-beneficial involvement of nonindigenous people in the revitalization effort and teaching indigenous Hawaiians their language.

Social Work and Chicano/Latino Diversity
Rosa Guerrero
*Martín Meráz García, Chicano Education*

My paper is going to focus on the social work program here at Eastern and whether or not it effectively prepares undergraduate students to work with the Chicano/Latino community. I will be examining basic demographic information about the Latino population within Eastern Washington University, the state of Washington and the United States. I will also be analyzing the demographics of staff and faculty that make up the social work program to see if any of them come from diverse backgrounds that understand the socio-cultural factors that Chicano/Latinos face. With the use of peer reviewed articles, I will be analyzing the future needs of Latinos by social work professionals in relation to status, stability, and depression and potential problems that may arise from the lack of preparation to meet the needs of this population. This study will address the importance of preparing future social workers on issues of cultural competency so they can better serve the fastest growing ethnic minority group in the United States.
Modeling Electricity Usage
Jarod Gunning
Christian Hansen, Mathematics

Forecasting electricity usage is a challenging activity that can be useful for numerous applications. One such application is helping the effectiveness of a smart grid, which is an electricity monitoring device that depends on electricity demand. There are an immense amount of factors that go into developing a model that can accurately predict these demand levels, including: location, date, and time. There will never be a model that can predict the demand precisely, but the closer one can get to anticipating the actual figures, the more success a smart grid will have in controlling electricity usage. An appropriate way of modeling this electricity demand is with a time series analysis. This project will discuss using a time series analysis to create a statistical model that will generate a forecast of the amount of electricity demanded at hourly intervals.

Process Improvement at Eastern State Hospital: Campus Café
Natalie Guthas, Megan Kile, Jamelyn Cassel
Judy Hutchinson, Health Services Administration

The Campus Café at Eastern State Hospital has been identified by the hospital administration to have the following problems. The flow of guests through the café creates a bottle neck effect, causing a long line during busy hours. Training to the kitchen staff, reorganizing the flow of traffic, and using all the assets available will provide guests a more enjoyable dining experience. Daily, the café is losing almost $250 dollars in lack of sales. Adding the convenience of pre-packed meals, vending machines, variety of daily specials, slowly increasing price, changing operating hours and providing other forms of payment will help the café bring in more customers and increase revenue. The inventory process takes an entire day, shutting the café down for completion. Implementing changes to the current inventory sheets, using an electronic system, and organizing the existing storage areas will help the inventory management process be more manageable. Waste comes in many forms. Wasted time, wasted sales, and wasted space have the potential of being eliminated after changes are implemented.

Bilingualism and Latinos in the United States
Rigoberto Gutiérrez-Piñón
Martin Meráz García, Chicano Education

In the U.S., many cultures and languages are in contact and many consider it to possess only one universal culture. However, often conflict arises as a result of the close proximity shared by all these different elements. In this investigation, I will concentrate on the experiences of Latino-Americans in the United States specifically related to language. Many Latinos in this country hold on to their linguistic heritage and, in varying degrees, speak Spanish. However, due to the duality of their identities, it is not uncommon for Latinos to encounter conflict within themselves and confrontations with others. Linguistically, there is a blending of their maternal language and the dominant language in the U.S resulting in Spanglish and a linguistic function is referred to as code switching. There is a cultural academic stigma associated code switchers resulting in many conflicts. Using sources such as Online Databases and research done by linguistics scholars, I will determine whether these stigmas are based on fact or prejudice and what factors lead to code switching and diglossia.

Deportation
Joanna Gutierrez
Martín Meráz García, Chicano Education

Deportations of unauthorized immigrants continue at record levels. Since President Barack Obama took office two-thirds of the nearly 2 million deportation cases involve people who had committed minor infractions, or had no criminal record
at all. In this paper I will address the opposition people have with deportations. I will discuss the impact deportations play on families and the toll it takes on the people they leave behind. This study uses demographic information collected by the US census, scholarly articles, and personal testimonies of young adults affected by this government actions showing the effects deportation has had on the population. This paper will show the ripple effects deportations are having in the wider community.

Defining Chicano Social Issues and Establishing Self-identity through Art
Lupita Guzman

Martín Meráz García, Chicano Education

The Chicano movement took place during the late 1960s through the early 1970s and introduced the contemporary mural movement. This movement was what paved the path for many Chicanos to express and protest their interpretations of social issues such as racism, immigration and Chicano identity though art. Chicano artists have chosen to express the political side of being a Chicano through art because they really want to provoke and cross lines that most people do not dare to do. I will use academic journals, periodicals, and art abstracts to improve and support my research. My paper will show that the contemporary mural movement helped establish an integrating role for Chicano artist to express their beliefs and self-identities within their culture. I will discuss the work of popular artists such as Guillermo Gómez-Peña as one of the many well-known Chicano activists who specialized in protestarte.

Reconnaissance Hexapod Robot
Adam Harris, Tyler Pike, Matt Clarke, Keith Hadley, Cameron Lorenzo, Wes Haugo, Yaun Yin

Martin Weiser, Engineering and Design
Robert Gerlick, Engineering and Design

This project is the design and construction of a Hexapod Robot for the Mechanical Engineering Senior Capstone class. In the ever growing field of robotics, it is becoming increasingly possible to replace humans with a robotic device for certain tasks, particularly those that are dangerous or repetitive. This is an aspect of robotics that can become very useful in the military and save soldiers’ lives. This project will delve into the field of military reconnaissance with a potential of assisting in firefighting operations. Our Hexapod will be able to walk on six legs, navigate around obstacles, have vision capabilities, and be able to pick up and carry a small payload. The major component of this project is the manufacturing of individual components. We will fabricate as many parts as we possibly can i.e., the body, legs, manipulation appendages, and any water resistant housings. We are also going to make a carbon fiber and Kevlar shell to act as armor protection against small arms, shrapnel, and as tip-over protection. We will use open source code to aid with our programming.

The Use of Photographic Interpretation to Determine the Compositional Volume and Nature of Mixed Magma from Basalt and Rhyolite Complexes at Yellowstone National Park
Amber Haston, Drew Adams

Chad Pritchard, Geology

Petrographic thin sections from the mixed magma complex at Grizzly Lake, Yellowstone National Park display complex mixing structures which make analysis extremely complicated. To address the complex nature of the slides, they were digitally scanned and analyzed using ImageJ software to determine relative composition and volume of the end members. These data were then compared to microprobe analysis obtained from a JEOL 8500F field emission electron microprobe, to determine the efficacy of the photographic interpretation. Such analytical processes could be used in larger scale situations, such as outcrop photos, to estimate volumes of visual end members (felsic and mafic constituents) in a mixed magma situation or metamorphic outcrops. Further, if refined, it could be a viable option in the analysis of fractality of the complicated structures displayed in the Grizzly Lake mixed magma complex.
Diet, Age, and Growth of Brown Trout, *Salmo trutta*, in the Colville River Watershed
Jenna Hatem
Allan Scholz, Biology

Brown trout inhabit the Colville River watershed (Stevens County), where they are understudied. From May to November 2013, brown trout were captured by electrofishing, electro-seine nets, and minnow traps. Annular rings on scales and total length (TL in mm) enabled back-calculation of length at each age, resulting: age 1 (93 mm), age 2 (167 mm), age 3 (240 mm), age 4 (293 mm), age 5 (361 mm), age 6 (411 mm), age 7 (476 mm), and age 8 (521 mm) with body lengths ranging from 40-555 mm from 346 brown trout captured. The stomachs (n=47) were pumped to analyze diet, where the percentage by weight from aquatic and terrestrial insects was 5.34% (Acari, Araneae, Coleoptera, Diptera, Ephemeroptera, Hemiptera, Hymenoptera, Lepidoptera, Odonata, Orthoptera, Plecoptera, Trichoptera and cases, and unidentified macroinvertebrate parts), 57.23% from fish (Cypriniformes, Perciformes, Scorpaeniformes, Salmoniformes, and fish remains), 33.15% from non-insect prey (Decapoda, Diplopoda, Gastropoda, Isopoda, Oligochaeta, and Rodentia), and 4.28% from detritus and rocks.

Are YOU a Sexual Citizen?
Fira Hedlund
Elizabeth Kissling, Women's and Gender Studies

Who is a sexual citizen? What does being a "sexual citizen" even mean? Sexual citizenship is a complex topic, and one which not many tend to think about very often. What is certain is that regardless of where you fall in terms of sexual citizenship, it's a topic that effects everyone. So ask yourself, do YOU count as a sexual citizen?

Video Acceleration via Gate Arrays: A study in component based development methods for computer engineering
Jason Helms, Adam Bortfeld, Toshiaki Ueno
Steven Simmons, Computer Science

Over the past decade, the EWU MANOME project has sought to create a hardware/software digital system to facilitate interactive music collaboration at a distance, over fast computer networks, in such a way that the resulting musical experience has a natural "same room" quality. The current video acceleration project fits within the overall goal by seeking to overcome a system bottleneck, created by the size of video data. Video data is much larger than audio data, and therefore slower to capture and transmit. By scaling the video to a reduced signal size, and using one of the fastest known digital platforms, Field Programmable Gate Array, this project seeks a many-fold processing speed improvement over standard real time computing systems. The method used for development is component based, and the project so far has reached, at the end of its initial phase, some functional goals, while concurrently refining and adapting a spiral method of systems development to an environment of high risk. In particular, a checklist of risk factors and constraints has been developed and tested.

The Day of the Dead in the United States
Tatiana Hernandez
Martín Meráz García, Chicano Education

The Day of the Dead (El Día de los Muertos) is a Mexican holiday that is celebrated throughout many countries, but mostly in Mexico. This very important holiday focuses on the gathering of friends and family in order to honor those who have passed. The Day of the Dead celebration has a long history to the Mexican people, where it is believed to have originated with the Aztec festival to the goddess Mictecacihuatl. I will be using sources from academic journals to discuss the origin of Day of the Dead and to explore in-depth what this celebration is really about. This paper will also discuss the different viewpoints that Hispanics in particular, Mexicans have on death compared to Americans. Finally this paper will
talk about how Day of the Dead is celebrated in the United States and whether or not this is a universal celebration for all Chicanos.

The Best of all Possible Worlds: A look into Leibnizian Moral Theory and contemporary understandings of evil
Elliny Hiebert
Kevin Decker, Philosophy

The paper deals with the most perfect of worlds theory, as presented by Modern Philosopher Leibniz, as well as with the concept of evil, most specifically in relation to Hannah Arendt’s question of the banality of evil. Since evil is so systematic and ingrained into the structure of modern-day society, it is getting increasingly harder to not only evaluate an individual’s acts as evil but to be able to detect evil acts as well. I will address the deficiencies in the most perfect of worlds theory in relation to the current state of systemic evil.

Water Revolution: Project EWU
Madison Hilpert
Jeffrey Stafford, Communication Studies

My presentation is based on a goal to make EWU a plastic free campus. Research done on the water bottle industry and other universities that have become plastic free is included. This presentation is designed to initiate change in how students think and to teach them the truth about plastic bottles. Supply and demand is the driving force of the water bottle industry, and the average American consumes over 30 gallons of bottled water each year. The manufacturing of plastic is an environmental hazard, and the recycling process is not as friendly as it seems. There are roughly 12,000 students attending EWU, and given that the average American drinks 30 gallons of bottled water, EWU students consume a total of 360,000 gallons of bottled water each year, which is equivalent to 2 million plastic bottles. About 12% of plastic bottles get recycled, leaving 1.7 million bottles ending up in landfills coming from EWU alone. Universities across the nation are going plastic free, it's time for EWU to get educated and get on board!

Aspects of Feminist Musicology
Renee Honn
Jane Ellsworth, Music

When looking in a music history textbook, one finds information on composers, performers, conductors, and musicians throughout history. However, looking through the pages reveals a shortage of women among the mass of men who have made great contributions to the musical field. Why have women been omitted from the textbooks and from our understanding of history? It is not that women have made no contribution to music through the centuries, but that their compositions and works have been undermined by the men who have contributed to the writing of history. The lack of women in the historiography of music can likely be associated with the role of women in society during earlier centuries and how its effects continue to current day. In my research, I focused on women throughout music history and how society impacted their professional careers. I studied both female composers and conductors, and explored how male authority figures played a major role in their education, publication and performance life.

Comparing the Clinical Methods of Assessing Hydration Status in Athletes
Amanda Humphrey, Jennifer Ach, Leslie Martin, Andrew Downing
Jeffrey Kawaguchi, Physical Education, Health & Recreation

In Athletic Training, hydration status in wrestling is one of the most important aspects of health because wrestlers often use fluid restriction to reach a desired weight class. To reduce the risk of dehydration complications, Athletic Trainers have used various clinical methods to determine hydration status such as pre/post practice weight, urine samples tested for
The Separation of Immigrants Families in United States
Alba Ibarra
Martín Meráz García, Chicano Education

Latinos are the fastest growing population in the United States; helping Obama win the election in 2012. Obama has deported more undocumented Latino immigrants than President Bush in his two terms combined. Deportations have affected millions of families who are separated each day in dehumanizing conditions. Immigrants are deported, families are separated, and their rights are not protected. Often children are left behind in the United States; where they learn to be independent overnight and look after their younger siblings. It takes years for deported families to see each other and without access to family reunification services, parents have to make the difficult decision to leave their children behind. The constitutional rights of U.S. born Latino children whose parents are being violated as the government engages in massive deportation campaigns. The sources being used for this study include data from the Pew Hispanic center, scholarly journals and other peer review sources.

A Comparative Study of the Impact of Activism and/or Resistance on Indigenous and Chicano Identity
Jack SimHayKin
Deirdre Almeida, American Indian Studies
Martín Meráz García, Chicano Education

This is a comparative study of Indigenous peoples and Chicanas/os, conducted to ascertain whether or not activism and/or social resistance foster Indigenous and/or Chicana/o identity, strengthen a previously existing sense of identity, or have a negative impact on how they connect with their respective identities. The focus of this research will determine how people of Indigenous and/or Chicana/o ancestry are affected by the actions they take and/or any social resistance they choose to participate in; and to understand how these groups react when faced with dominant social groups individually and as a group. This research included interviews and extensive archival research of biographies of Native Americans and Chicanas/os who have attended schools geared toward assimilation/Americanization, notable members of both the American Indian Movement and the Chicano movement, and other scholarly works. The information gathered details how individuals of Indigenous ancestry and Chicanas/os are shaped by the actions they undertake or choose not to take.

Tipping Tendencies in Sit-Down Restaurants by College Students
Ria Jewell, Kendra Crump, Erika Miller, Emily Wood
Theresa Martin, Psychology

Gender variations in social interactions have a significant impact on not only general trends in society but also economic structure. Tipping is a highly social method of reinforcement for service in the hospitality industry. This study attempts to define the relationship between gender and tip amount given in a sit down restaurant. Data from 109 college students from Eastern Washington University were collected. Previous data has examined gender and tipping along with other variables, and their effect on average tipping. However, this study seeks to explore the added interaction of a person's level of gratitude and gender, and its effect on tipping. We found that there is a trending direction toward women with higher gratitude tipping more than any other group measured. The relationship between gratitude and tipping was p=.069 trending toward significance. In addition, we examined the ways in which the quality of food, service, and atmosphere
play a role in students' tipping tendencies. We found that students place these qualities as highly important when deciding how to tip.

The Death of Narrative: Art's changing focus in the nineteenth century
Robert Jones
Barbara Miller, Art

Modernism’s effect on art becomes evident in the 20th century, but it was during the second half of the nineteenth century that the groundwork was laid for ever more expanding and experimental movements. This presentation describes how the French Realists, and then the Impressionists, moved away from the established hierarchy of genres that places particular importance upon storytelling, as seen in historical and religious paintings, which had been the most celebrated artistic expressions in Europe leading up to the 1840s. The works of the Realists and Impressionists give way to a more journalistic approach to depicting imagery. This is in part due to a change in prevailing tastes, owing to a restructuring of social factors, such as literacy and affluence, but the development of certain technologies also helped to facilitate this shift in focus. This presentation also discusses the reactions to these movements, and provides context for their importance in art history as the foundation for the period of rapid innovation that resulted in the century that followed.

Relationship Between Parental Upbringing Experience and Current or Ideal Relationship
Collin Keating, Amanda Nikkola, Brandon Pellett, Cort Walker
Theresa Martin, Psychology

The current study examines the relationship between level of satisfaction between caregivers as rated by the person and their level of satisfaction in their current or recent romantic relationships and the beliefs they hold in terms of their ideal relationship. We predicted that the higher the level of satisfaction between the parents as rated by the participant would positively correlate with the amount of current or recent relationship satisfaction. We surveyed 109 people asking them various questions about their parent's relationship, their current or most recent relationship, and aspects of their ideal relationships. Statistically significant differences were found between all groups (parent satisfaction, current/recent relationship satisfaction, and ideal relationship qualities) supporting our hypothesis. This current study adds to an already vast body of research showing that the type of environment and relationships a person is exposed to while growing up affects their intimate relationships in later adulthood.

Michael Kiernan
Paul Lindholdt, English

Hunter S. Thompson wrote an article for The Nation magazine in 1965 entitled “The Motorcycle Gangs: Losers and Outsiders.” The article spawned the 1966 book Hell’s Angels: The Strange and Terrible saga of the Outlaw Motorcycle Gangs. Rather than sensationalize the gang as the mainstream media and law enforcement did, Thompson chronicled the raw, gritty, and anti-social origins and behaviors of a group he characterized as a “bunch of petty jack rollers.” The article and book were significant in a number of ways. They were sociological documents which questioned the culture that spawned these “outlaws.” It was a very early instance of “new journalism,” which placed the writer in the book as a character and was written from that writer’s subjective viewpoint. Thompson was highly critical of the press and law enforcement, and rightly so. Both the article and the book represent the beginnings of “gonzo journalism,” which Thompson is credited with originating. The term eventually earned a place in the literary lexicon.
The Relationship between Incarceration Factors and Internal Locus of Control
Lindsay Kirby, Chad Creighton
Kayleen Islam-Zwart, Psychology

Research has explored internal locus of control and adjustment to prison (Islam-Zwart & Vik, 2002; Pugh, 1993; Reitzel & Harju, 2000); however, little research has been conducted on the relationship between locus of control and incarceration factors. Ruback, Carr, and Hopper (1986) found that offenders who served longer sentences experienced more perceived control. The current study examined the relationship between sentence length, previous incarcerations and ratings of internal control. It was hypothesized that there would be a relationship between longer sentences and time incarcerated and higher levels of internal control. Thirty-five male and nine female offenders incarcerated at a metropolitan county jail within the previous seven days completed an interview and questionnaires, including the Internal Control Index (Duttweiler, 1984), as part of a study of adjustment to jail. Regression analyses revealed a positive relationship between sentence length and days in jail before evaluation, but no relationship for days incarcerated overall or previous incarceration history.

Bollywood Dance: A case study of the communicative nature of dance
Tiffani Kittilstved, Joel Hetrick
Michael Zukosky, Anthropology

This ethnographic film explores the communicative nature of dance, focusing on Bollywood Dance as a specific case study. From February 28 to March 31, 2014, I conducted several interviews and filmed a dance performance with an Indian dancer trained in the Bollywood dance tradition. Through visual documentation of these interviews and the performance, I explore how Bollywood Dance is communicative. Like a language, Bollywood Dance can be seen to bring people together, unite them, and allow them to convey a specific message to one another with their movements. As the film documents, there are Indian and Hindu cultural aspects to the structure of Bollywood Dance as well as ways that individuals utilize that structure in self expression. Bollywood Dance enables people to communicate to each other, with each other, and about each other. It can transmit complex messages related to social status or power, Hindu spirituality, and intimacy or emotion, often simultaneously.

The P-P-P-Perceptions of St-St-Stuttering
Tiffani Kittilstved
Julia Smith, Anthropology

The purpose of this research is to determine how stuttering is viewed and whether education about stuttering will alter listeners’ perceptions towards stutterers. A widely used therapy technique associated with stuttering is self-advertising, where stutterers notify their listener that they stutter than those who do not. Studies have shown that listeners react more positively towards stutterers who self-advertise. My research takes this idea further, investigating how stuttering is perceived in groups who are educated about stuttering and groups who are not. To research this, I interviewed students and constructed a survey that I gave to a control group and an experimental group, which received education about stuttering prior to answering. The findings from these groups were compared to see if there was a statistically significant difference between the two groups to infer that simple education about stuttering alters perceptions about stutterers. The results of this study help us understand the stigma surrounding stutterers and how education can alter that.

Chicano/Latino Lifestyle Assimilation in the United States
Josh Knigge, Rachelle Boyette
Martín Meráz García, Chicano Education

Demographics in the United States are constantly undergoing major changes and the country is becoming more diverse. The number of immigrants migrating into the United States is growing at an exponential rate, which means there are a high number of immigrants dealing with the stresses of assimilating into the American lifestyle. According to the US
Census, by the year 2050, the United States may be so diverse that Chicanos make up a high percentage of the population, reaching as high as 31.3% (Ortman and Guarneri, 2009). The challenges of assimilation vary greatly for example: changes in diet, exercise, beliefs, and environment. For most, the assimilation process takes time, but comes naturally; however, there are some cases in which the transformation can greatly alter a Chicanos physicality as well as mental or emotional states, bringing about health issues, or disorders. By utilizing sources such as scholarly journals and psychological publications, my paper will demonstrate instances of these mild, moderate and severe cases of health issues and disorders.

A Visual History of Tattooing
Katrina Knizek
Barbara Miller, Art

Tattooing has a rich and vibrant history spanning cultures and continents; although the practice has fallen into and out of favor over the centuries, the personal significance and visual appeal have endured mirroring the permanence of the art form itself.

Peditham hi sui vellyn?: Fan Adaption of Invented Languages
Janie Knutson
Julia Smith, Anthropology

Fictional languages start out as building tools in writer's construction of fictional worlds. Fans of these worlds not only enjoy them but also recraft these fictional languages for their own use. This work explores fannish uses of invented languages through scholarly research and personal experience. Created languages such as Klingon and Sindarin have been widely adapted by fans for role playing, cosplaying, writing, discussion, as well as used in various art forms. This study sheds light on the ways in which people creatively adapt popular cultural materials to express new meanings and identities within and outside the fanbase.

Female Genital Mutilation (FGM): Practice, Tradition, and Intervention Amongst the Maasai
Cassandra Koch
Jerry Galm, Anthropology

Female genital mutilation (FGM), also known as female circumcision, has been a growing concern in the West beginning around the 1970's. The World Health Organization (WHO) has recorded instances of FGM in 28 countries in Africa alone and estimates that between 100-140 million women have been subjected to FGM worldwide. The Maasai are a semi-nomadic pastoralist group who are located in Kenya and northern Tanzania. The practice of FGM is widespread among the Maasai and has deep cultural roots within their society. There have been very few members of the Massai community who have spoken out in favor of the abolishment of FGM, however, there have been a number of attempts made by groups outside of the Maasai community to try and eradicate the practice of FGM among the Massai. Western countries, such as the United States, have taken the front seat in trying to eliminate FGM within African groups such as the Maasai. This raises a number of questions in regards to whether or not the West has any right or moral duty to eliminate an important part of Maasai identity and culture.
Is Truth Contextual?
Christofer Koch
Terrance MacMullan, Philosophy

Linda Alcoff’s asserts a context dependent understanding of truth that she argues helps to understand and fight oppression. This paper argues that Alcoff's theory is based on a naturalist understanding of truth which will be determined to be mistaken. It will then be argued that truth is best understood in the context of ordinary language, which defeats the idea that truth is an object for philosophical study and that oppression is best fought outside of the confines of a theory of truth.

Recovery from spinal shrinkage: A comparison of four unloading positions
Jenn Kumanchik
Jeni McNeal, Physical Education, Health and Recreation

Running exposes the spine to chronic applications of low magnitude compressive forces resulting in shrinkage, an overall reduction in space between vertebrae. Spinal unloading allows for recovery from the effects of compressive forces. This study sought to assess the effectiveness of four supine spinal unloading positions in recovering from spinal shrinkage incurred while running. Twenty-one healthy male and female recreational runners attended 4 data collection days. Subjects performed a 15 min run at a self-selected pace followed by a supine unloading position. Sitting stature (SS) and intervertebral disc height (IVDH) measurements were recorded pre and post running and spinal unloading protocols. Significant recovery was observed for all four positions (p < .05). Lying supine with a lumbar support demonstrated greater recovery than other positions (IVDH = 3.45 ± 0.05 cm; SS = 854.4 ± 20.7 mm), however the difference was not significant (p > .05). This research yields beneficial information about effective recovery techniques that are easily executed in a variety of environments.

Architecture of the Modern World
Nicholas Law
Martín Meráz García, Chicano Education

Although sometimes overlooked, Latino/Chicano architecture is all around us and continues to influence modern structures today. From early century megalithic architecture to the baroque cathedrals and even to the Modernism movement, Latino architects have played a large role in establishing beautiful works of art and attributing to modern day architecture. In this paper I will address the influence Chicanos have had on modern day architecture. Tracing back to the Stone Age, Latino architecture can be discovered, though primitive it shows some of the earliest examples of their designs. As time progressed, Latino architecture was influenced by the Romans, Moors, Celts and even natives such as the Aztecs and Mayans as well as many others, spawning the Romanesque, Mudejar, Puuc, Castros and other styles that were practiced and still are practiced by Chicano/Latino architects. Using published works on architecture and architectural magazines, I will explain the influence Chicano/Latino architecture has on the U.S. and beyond.

Inviting (the) University: Disarming Violent Rhetoric and Working Towards a Charitable Rhetoric in Composition Theory
Paul Lee
Justin Young, English

In his influential article “Inventing the University,” David Bartholomae claims “writing… is an act of aggression disguised as an act of charity.” I find troubling the suggestion that appropriation and aggression are necessary to communication. Though I acknowledge that academic discourse maintains dominance over students, I argue for a dialogic and “charitable” approach for addressing power structures. This paper builds off of the writings of post-process proponents Gary A. Olsen and Kevin J. Porter, who outline this dialogic perspective as it relates to composition theory and practice. As Porter suggests, “Charity is not an optional choice, but a precondition for communication.” This relationship encourages a generous perspective by both reader and writer that precludes a rhetoric that focuses on violence and conflict. So, rather than the “Inventing the University,” I posit that the student and instructor should, together, be “Inviting (the) University.”
Ethnicity, Gender and Tobacco Use Patterns Among U.S. Adults  
Tabria Lee-Noonan  
Christina Torres García, Chicano Education

Although much is known about the demographics of tobacco use and related health effects, the vast majority of research has not looked at specific ethnic and gender pattern uses. The objective of this review is to determine which gender and ethnic groups maintain the highest risk levels for addiction, what these risk factors are, and determining pattern uses and smoking cessation attempts. A total of 22 sources were used for this review, with the majority having been published in the last six years. Through the examination of these studies, it was determined that African-Americans and Women face the highest risk factors concerning tobacco use and addiction. The increased levels of addiction can be attributed to multiple factors; tobacco type preference, menthol cigarette use, and biology. Related to addiction, both groups also face less successful attempts at quitting tobacco products. To increases successful smoking cessation with these groups, this paper recommends creating tailored cessation and education programs that are both gender and culturally competent.

Exploring Relationships between Anger, Narcissism, Shame, and Compassion  
Christi Lewallen, Mauricio Zumba  
Russell Kolts, Psychology

Anger literature reveals discrepancies regarding its relationship to shame, with some findings linking shame to mismanaged anger and aggression. We sought to explore relationships between problematic anger, shame, and other variables that may play a role in this relationship. The goal: construct a theoretical model of anger that includes shame and self-criticism in understanding factors that play a role in precipitating and maintaining problematic anger. We examined vulnerable narcissism, self-compassion, fears of compassion, and shame in relation to manifestations of problematic anger. We hypothesize that problematic anger would be positively related to measures of vulnerable narcissism, shame, and reluctance to direct compassion to oneself and others. Further, we predicted that problematic anger would be negatively related to self-compassion. The hypothesized relationships between narcissism, shame, and anger were observed, with the combination of narcissism and shame accounting for 42% of the variance in total anger scores on the MAI.

Reworking the Electoral College  
Ezekiel Loseke  
Kevin Pirch, Government

The president certainly had a desire for universal health care, and campaigned with the idea when he ran for election. Officially the only thing that the president did to pass “Obama Care” is sign the bill. Legislators sponsored the bill, legislators amended the bill, and legislators wrote the budget to finance the bill. Nancy Pelosi and Harry Reid had much more to do with the passage of the bill than the President, but it bears his name from almost all conservatives, and a healthy percent of liberals. Why is an executive getting the credit for the work done by the first branch of government? In the minds of the public it seems as though the most equal of the equal branches of government no longer exists, and if it does, it exists to accessorize the executive, not to check him. The power dynamic has definitely changed from the intentions of the founders; one reason may be the way the president is elected.

Depression in the Chicana/o Latino Population  
Jolene Luebke  
Martín Meráz García, Chicano Education

The prevalence of mental illness is increasing in the United States every year. The main focus of this paper will be identifying the percentage of the population of Chicana/os that identifies with or has been diagnosed as having a mental health disorder, specifically depression. I will evaluate if the percentage is higher among those who identify as being of Chicano/Latino ethnicity or those who identify as being of non-Hispanic white ethnicity. In this study I will provide a
breakdown of the percentage of male and female who suffer from depression and identify potential factors that have led to
this illness within this population. I will use medical and psychological journals to prove that mental illness is on the rise
but not necessarily among the Chicano population as compared to the non-Hispanic white population.

The Relationship Between Social Comparison on Facebook and the Levels of Social Anxiety, Self-Esteem, and General Social Comparison in College Students
Kalene Lynch, Heather Youngs, Rebecca Fullerton, Martin Sanks
Theresa Martin, Psychology

Social media use can have a potentially powerful psychological influence on individuals, but the current body of research
is scant. This study explores the connection between social comparison when exclusively on Facebook with levels of
social anxiety, self-esteem, and general social comparison. These constructs were assessed through the Social Comparison
Rating Scale modified to be Facebook-specific, Social Anxiety Questionnaire for Adults, Rosenberg Self-Esteem Scale,
and the Iowa-Netherlands Comparison Orientation Measure. The subjects participated in an online survey through Eastern
Washington University’s SONA system. This study found that there were significant correlations between one's tendency
to negatively socially compare on Facebook with high social anxiety, and low self-esteem scores. There was also a modest
correlation between Facebook-specific social comparison and general social comparison. These findings imply that there
is a relationship between comparing oneself negatively on Facebook with high social anxiety and low self-esteem levels.

Behavioral Problems and Attachment Styles in Foster Care
Karissa Mack, Aaron Walsdorf
Russel Kolts, Psychology

Children in foster care display elevated signs of mental disorders. Lacking a primary attachment figure has been proposed
to explain the detrimental psychological effects of foster care. Given the critical importance of attachment in the
development of children, insecurely attached children are at a higher risk for problematic upbringing. Insecure attachment,
specifically disorganized attachment, has been associated with the development of externalized behavior problems (e.g.,
Lyons-Ruth, Easterbrooks, & Cibelli, 1997). Based on current research, interventions to increase safeness and promote
healthy attachments with parental figures have reduced the effects of behavioral problems. If effects of such factors are
mitigated, greater stability and more continuity in child-caregiver relationships will result, producing more positive
outcomes for children (Connell et al., 2006, Pecora et al., 2009, Rutter & O’Connor, 1999). Each year, 700,000 children
spend time in foster care (CWLA, 2011). Addressing these issues is critical to the foster care system and the future of
these children.

Evaluating how Mobile Technology can Reduce Excessive Alcohol Use Among High School Freshmen
Ted MacLennan
Sharon Laing, Psychology

Early substance use is linked to other risky behaviors that contribute to long-term health risks. Short messaging service
(SMS) and mobile applications can potentially help prevent risky or abusive behaviors. The objective of this initiative is
to review mobile health technology as a viable approach to reduce the incidence of alcohol use among youth and
adolescents. We assessed the Youth Risk Behavior Surveillance System (YRBSS) and Behavioral Risk Factor
Surveillance System (BRFSS), two databases tracking youth health risk behaviors. We also evaluated the mobile health
literature which offered information on promoting healthy behaviors among youth. Early intervention can help prevent
the development of chronic alcohol use, limiting long-term social, behavioral and health consequences. Smart phones and text
messaging are innovations that connect youth. This report’s goal is to encourage research that evaluates functionality and
innovation in mobile technology to reduce substance abuse in youths.
Human Cloning
Shaley Martin
Bradley Fillmore, Biology

When the phrase “human cloning” is brought to mind, it often brings images of two identical people standing next to each other saying and thinking things in time with each other. This misconception, along with many others, is attached to that single phrase. Many people even believe that human cloning and stem cell research are the same. In this presentation, myths, misconceptions, and other information will be discussed to highlight the benefits and drawbacks to this technology. Additional information will focus on data from animal studies that have been conducted with the mindset of one day doing human studies as well as speculations on the psychological effects on both the parents and the children.

The Relevance of Biology on Ethical Systems: A brief survey
August Mattson
Christopher Kirby, Philosophy

The topic of the state of nature is used frequently in Philosophy. This presentation compares Aristotelian Virtue Ethics, Stoicism, and Care Ethics in a natural state, or rather a state from which the chief concerns are biological. The purpose of this is to advocate for a form of virtue ethics using biology and basic psychology as the basis for it, through advocating for a system that is not virtue ethics. Ultimately we must accept that we are not in a state of nature, and arguments made from it are not grounded in what would now be reality.

Effects of a Short Term, Short Duration, High Intensity Exercise Intervention on Body Composition and Intra-Abdominal Fat
Gavin McBride, Kalene Lynch, Ricky Lang, Dustin Stanek, Daniel Markin
Wendy Repovich, Physical Education, Health and Recreation

Short-term high intensity interval training (HIIT) has been shown to significantly improve body composition and intra-abdominal fat stores. Studies have shown Tabata, a protocol using repeated rounds of 20-sec of work and 10-sec of rest, to be a valid protocol for HIIT. The purpose of this study was to determine the effectiveness of a short term, short duration, HIIT intervention using a Tabata protocol, on intra-abdominal fat and body composition. Fourteen participants performed eight rounds of Tabata body weight jump squats, at maximal effort each Monday, Wednesday, and Friday for three weeks. There were no significant differences in body composition. The amount of intra-abdominal fat did significantly decrease, $p \leq 0.05$. The decrease in intra-abdominal fat suggest that short term, short duration, HIIT can reduce health risks associated with high amounts of intra-abdominal fat, such as cardiovascular disease and the metabolic syndrome. Future research should utilize lower impact body weight exercises, control for outside physical activity, and include a larger population size.

Chicano Assimilation Into US Athletics
Anthony McChesney
Martín Meráz García, Chicano Education

This paper as a whole will talk about the Chicanos assimilation into our United States sporting system. With a focus on soccer, and more specifically the MLS (Major League Soccer) this paper will discuss the successes and the failures they’ve had in regards to assimilation... Following that there will be a section of educated opinions and speculations about the future that will be backed up with research such as the rise in population of Chicanos on the rosters from the founding of MLS in 1996 to the present. Using “Chicano and/or Mexicans” as key words to my search in US sports brings a lot of results but when fined tuned to soccer the analysis is much more possible because the amount was far greater. The research seen so far shows that Chicano culture and Chicano people are common in some sports but in others it is nonexistent. This paper will expose the truth on the underrepresentation and assimilation of Chicanos as a whole in the US sport system.
Maus: The story of a real superhero
Sharon McCintock
Paul Lindholdt, English

Graphic novels are not yet a widely accepted form of literature. However, *Maus*, the only graphic novel to win a Pulitzer Prize, began to break the stigma against comic books in literary discourse. Today, graphic novels are widely used in K-12 classrooms, and are taught in an academic course at Eastern. *Maus* is especially accepted in classrooms as a biography and memoir of a Jewish family that survived the Holocaust and how that atrocity reverberates through generations. This work focuses on how author Art Spiegelman's father survived the Holocaust through what must be considered heroic action.

Treatment of the Psychopathic Female in England: A Psychoanalysis of Brontë’s Bertha
Mason and Lucy Snowe
Fred McFarland
Beth Torgerson, English

This presentation will reveal some of the diagnoses and treatments in regards to lunatic women in England. During the eighteenth and early nineteenth-century, some women were isolated from society as criminals. Not until a major overhaul in the attitudes of practitioners, did patients, suffering from insanity, receive possible therapeutic alternatives. These new methods of treatment were implemented after the legislation of the Lunatic Acts of 1845. These two phases in the treatment of the insane are represented in the novels of Charlotte Brontë: *Jane Eyre* and *Villette*. Bertha, the mad woman in the attic in *Jane Eyre*, signifies the former years of maltreatment of the insane in England. In *Villette*, Lucy Snowe’s familial asylum demonstrates the latter phase of Victorian practitioners’ approach toward lunacy, which was also problematic.

Warrior-Kings and Their Giants: The intertextuality of Beowulf and the story of King David
Fred McFarland
Paul Lindholdt, English

Certain challenging features and events surrounding *Beowulf* have caused tension among critics. However, despite its idiosyncrasies, many recent adaptations of the poem reveal the amazing popularity *Beowulf* continues to create. From Hollywood films to comic books, the Anglo-Saxon poem has made a tremendous impact on pop culture. One of the major contributions in regards to the poem’s success is the continual interest among scholars. Among these scholars is J. R. R. Tolkien. His unique Biblical perspective concerning *Beowulf* opened the door for a host of Old and New Testament interpretations of the poem. One of the most insightful Old Testament analyses reveals the parallels between King Beowulf and King David.

Occupational Therapy Department Interprofessional Education Program Evaluation
Greg McMicheal, Liz Follis, Nicolee Curtis, Sophie Torba
Robert Krueger, Occupational Therapy

We are four student investigators conducting a concurrent triangulation mixed methods research design intended to investigate the Master of Occupational Therapy department’s current state of interprofessional education. Our quantitative component consists of four Likert scales administered at three points in time to track changes in student attitudes towards interprofessional practice as they begin and continue through their Fieldwork II placements. Our qualitative component is a within-site intrinsic case study in which we examined faculty attitudes, statements in course docs, and student perceptions of interprofessional education.
PechaKucha: REEF (Conservation)
Joseph McMicheal, Thomas McMicheal
Mindy Breen, Design
Travis Masingale, Design

This multimedia project was created to educate families and children living in Washington state on the problem of world coral reef conservation. It features a large-scale three-dimensional infographic detailing the problem, a website that functions as a carbon footprint calculator, as well as a 20 gallon designed aquarium with sustainably sourced coral, fish and invertebrates.

The Forgotten Members of Our Society: Latinos in the criminal justice system
Jeremy Mendoza
Martín Meráz García, Chicano Education

According to the U.S. Department of Justice, as of midyear 2010, the total population of jail inmates was 1,613,740. Since jail inmates have been reported to have lower levels of education than the general population, it raises a high concern for their re-establishment in our society once they are released. While there has been an attempt to provide educational services such as the attainment of GED’s to prisoners of the adult correctional population, the services naturally discontinue once the prisoners have served their time in prison. This study examines the opportunities and obstacles that are presented to prisoners who seek education after their release from prison. The study also reviews the policies in place which hinder the re-establishment of ex-inmates in our society and closely examines the racial groups who are most affected by these restrictions. Specifically, the study will examine the Hispanic population in more depth as it has been recognized by the U.S. Census to be one of the nation’s fastest-growing ethnic groups.

Hermeneutics within the Social Sciences
Rachel Moen
Mimi Marínucci, Philosophy

The hermeneutic tradition is one of the most important parts of how the social sciences are conducted. This paper will explain what hermeneutics is and why it is needed in the study of the social sciences. I will demonstrate this by describing that hermeneutics is one of the best ways that social sciences can study humankind. I will start with an explanation of what the word hermeneutic means, along with some history about when this tradition started. I will examine some of the arguments for and against this tradition. The paper starts off by making reference to positivism, while pointing out that this tradition still left questions to be answered, that couldn't be answered with positivism alone. Hermeneutics led the way for a new approach for receiving a more holistic look at studying humankind. The discussion turns to talk of how hermeneutics is the useful option for studying humankind. I also give a few examples of where and how it may connect within certain fields. Also a connection discussed within the paper on how hermeneutics applies specifically to the field of anthropology.

An Indigenous Contribution to the International Community
Virginia Morales
Majid Sharifi, Government

In the predominate liberal international world system there is a great push for states to become more democratic and partake in the capitalist economic system. However, these very requirements have posed a conundrum to the stability of our planet. As a state thrives to become developed, it struggles to preserve their natural resources and at the same time compromise it to compete in the world economy, such is the case in Brazil and the natural resources within the Amazon. Yet, within the whole process the most effected group to receive the full effects and damages of the consequences brought about is the indigenous community located deep in the Amazon. Although there are many negative connotations placed on
these people, their local and traditional knowledge of the rainforest may serve as hopeful knowledge to counter-attack the effects on the environment.

**Comparison of Muscle Activity Between Cutting with a Sub-compact Portable Bandsaw and Hacksaw**

*Neil Morris, Ben Tucker, Jesse Brouwer*  
*Dan Anton, Physical Therapy*

Upper extremity musculoskeletal disorders (UEMSDs), such as wrist or shoulder strain, are common among occupations that require repetitive, forceful hand exertions, such as construction. A new type of portable bandsaw is designed to cut materials more quickly and easily than a hacksaw. However, the bandsaw is much heavier than a hacksaw, so it is unclear if it will reduce the risk of injury. The purpose of this presentation is to describe the methods of an investigation to compare muscle activity in the arm between the tools at waist and shoulder height. We hypothesize that the bandsaw will reduce total muscle activity while making the same cuts. Twenty EWU physical therapy students will be recruited as subjects. Using a repeated measures design, subjects will perform cuts at each height with each of the tools. Muscle activity will be measured with surface electromyography (EMG) and analyzed with an integrated EMG protocol and synchronized video.

**Construction Solutions Database**

*Neil Morris, Ben Tucker, Jesse Brouwer*  
*Dan Anton, Physical Therapy*

Construction work related musculoskeletal disorders (MSDs) result in millions of dollars of lost revenue every year. Construction trades can be physically demanding and predispose laborers to various MSDs. New tools are being developed to decrease the risk of MSDs in construction laborers. Construction Solutions is an online database of different engineering and work practice solutions that may help reduce the occurrence of construction work related MSDs. We are assisting the development of Construction Solutions by assessing different tools and MSD hazards that different construction trades may have. The website is a resource that will allow contractors and laborers of different trades to access information about MSDs, hazards, and tools to reduce injury or increase productivity. The purpose of this presentation is to show how we work with different industrial professionals and how we assess various tools and create solutions for the website.

**Equatoguinean Spanish and Literature**

*John Nielsen*  
*Michael Zukosky, Anthropology*  
*José García-Sánchez, Modern Languages, Literature and Philosophy*

In Equatorial Guinea, a small sub-Saharan country in Africa, a special dialect of Spanish has developed over the course of the nation’s history. This dialect owes its development primarily to historical political influence from Spain. A second language for all Equatorial Guineans, it continues to be spoken and used daily, despite the country’s nearly fifty years of independence. The unique environment in which Equatoguinean Spanish developed helps researchers in linguistics understand the influence of African languages on Spanish spoken in the Americas. Since its beginnings in and around the 1960’s, the literature of Equatorial Guinea has gone largely unnoticed by the Hispanic world. Its specific works reflect the cultural syncretism that exists in the nation, reconciling decades of colonialism with a mosaic of indigenous cultures. Novels like “Ekomo” and “Las tineblas de tu memoria negra” represent important works in this sphere. I researched both the Spanish dialect and the literature of Equatorial Guinea. A few other Spanish-department students and I intend to present in Spanish.
The Perceptions of College Among Latino Elementary Students
Amy Núñez
Martín Meráz García, Chicano Education

According to the Pew Research Center, the disparity between Latinos (14.5%) and Caucasian (51%) students who earned a Bachelor’s degree in 2012 concerns scholars and policymakers. Scholarly articles (Chung and Dickson 2011; Spears, Brown, and Chu 2012; Moreno and Gaytán 2013; Becerra 2012), support the statement that the educational system in the U.S. can improve the services provided to Latino students in order to increase their college attainment. Some concerns raised by scholars include the lack of certified teachers and administrators who are culturally competent and can help Latino students develop the skills needed to succeed in college. This study uses empirical data from teacher surveys, focus groups with parents, and a version of the Kenneth Clark Doll Experiment in order to determine the factors that shape the perceptions of college among Latino elementary students. The research additionally explores the difference of perspectives according to gender among Latino children.

“The Dusty Loam”: A Berkeleian Defense of why knowledge is specific
Sarah O’Hare
Kevin Decker, Philosophy

The Irish Bishop, George Berkeley in A Treatise Concerning the Principles of Human Knowledge (1710), he presents a problem with the power of abstraction as “the abuse of language.” This paper identifies Berkeley’s criticism of all philosophies which put too much weight on abstract ideas to be justified. First, Berkeley’s notion of Ideas of the Mind are analyzed as they are presented from Part I of the Treatise to identify what being is and what being is not, as well as the limits of knowledge via experience. Secondly, through the analysis of D.E. Bradshaw, Berkeley’s notion of abstractions and generalizations as different types of ideas are untangled from one another. Berkeley is, thirdly, defended against Daniel E. Flage’s claim of possible relative Ideas of the Mind, the relativity making fertile grounds for abstraction and generalization. In the fourth and final section, Berkeley is defended against the oppositional Kantian claims found in sections 8 – 10, and Remark II of his Prolegomena to Any Future Metaphysics (1783).

South African Music and its Contribution to the Globalization of the Anti-Apartheid Movement
Mary Ormsby
Majid Sharifi, Government

Music has a wide global reach, thanks to the accessibility of mass media. It is this accessibility that made it possible for the music of Hugh Masekela and Miriam Makeba to reach such a large audience. Their music educated people across the world on Apartheid in South Africa, which was first implemented in the late 1940s by the Nationalist Party. Freedom songs such as Makeba’s “Soweto Blues” and Masekela’s “Bring Him Back Home” carried strong messages within their lyrics that spoke of the violence and oppression occurring within the country. A large reason the world became educated on the South African situation was due to this music and its global reach.

Shame and Mathematics Anxiety
Leah Parker, Christi Lewallen, Aaron Walsdorf, Antonia Cervantes
Russell Kolts, Psychology

The purpose of this study was to explore the role of shame in mathematics anxiety. It was hypothesized that measures of shame and anxiety would be positively correlated with one another, and that shame measures would be significantly predictive of mathematics anxiety even when controlling for test and general anxiety. Measures of math anxiety, test anxiety, general anxiety, general shame, and a newly developed measure of math shame were given to a nonclinical university population. Results indicated that all variables were significantly positively correlated, anxious tendencies accounted for a significant proportion of variations in math anxiety, and the general shame tendencies did not account for
any additional variations. However, math-specific shame was shown as the best predictor of math anxiety, above general anxious tendencies. These results lend initial validity to our developed measure of math shame and support the theory that specific shaming events related to math could lead to higher levels of mathematics anxiety in individuals.

The World’s Oldest Profession: Why is prostitution really illegal?  
Keralyn Parsons  
*Matthew Hodgson, English*

Prostitution is illegal in America and has been for over one hundred years. It is widely accepted that this is because buying and selling sex is deplorable and damaging to our society. It seems backwards that the legalization of prostitution would actually be better for both prostitutes and the general public, but research has shown that many of the aspects of prostitution that people think are damaging would be more effectively stopped under a system where prostitution is legalized and regulated instead of criminalized. This research is not secret, so there must be another reason that prostitution is still illegal. Significant connections can be made between America’s patriarchal government and the illegality of prostitution even though this is not necessarily in the public’s best interest. These connections show how we are swayed into accepting baseless conclusions as fact, which leads to the oppression of impoverished women. I will be presenting on how the safety of prostitution would be improved by legalization and how the patriarchal government benefits from the current state.

Percentage of Chicano Nurses in Spokane  
Lynnzie Paulson  
*Martín Meráz García, Chicano Education*

This paper discusses the percentage of Chicano or Latino nurses compared to white and other minority nurses; This study will show a lower percentage of Chicano nurses compared to white and other minority nurses. I will also discuss the inequality in educational opportunities in this field for Chicana/os as well as show how providing more opportunities will improve the health and nursing care for Chicano consumers. Using information from the U.S. Census, along with statistics from state, national, and federal agencies, and other academic peer reviewed studies this study looks at the nursing field, more specifically in Spokane, Washington to see what improvements could be made to the health care for Chicano people.

Immersion and Bilingual Education: The attack on Chicano students  
Taylor Phillips  
*Martín Meráz García, Chicano Education*

This project discusses the differences between the bilingual and immersion education programs in the United States and how immersion language programs would benefit all students in public education programs. My original project focused on how Chicano students could benefit from immersion education, but decided to analyze the misconceptions and opposition that these programs would only be beneficial for the Chicano students and therefore were not ‘worthwhile’ because they would only serve enough students. My study investigates the cognitive and social benefits for students of all backgrounds as well as discussing the greater opportunities for students, families and teachers as a cohesive learning community. My hope is that with this project I am able shed a larger light on the struggle Chicano student’s face in the education system as well as neglect of better education for all students based off of stereotype or misconception of one ethnic group in the United States.
Perceptions of Rape Culture Among Young Adults in Spokane County
Taylor Phillips
Julia Smith, Anthropology

This project explores attitudes toward rape culture among young adults in the Spokane county area. Rape culture, an idea that first appeared in the 1970s and has been popularized in recent years, refers to the idea that central cultural beliefs, media images, social practices and societal institutions support and condone sexual abuse by normalizing, trivializing or eroticizing male violence against women and blaming the victims for their own abuse. I interviewed adults between the ages of 18 and 35 about rape culture and their response to it. I asked how they understood rape culture, how it affected their lives, ways to educate their peers, and how we think about sexuality and sexual assault. I found that men and women had different views of rape culture, but both felt the biggest problem was silence about these issues. From this project I want to put forth some ideas which may help change the ways in which students are brought into the conversation about rape culture.

Comparison of Chemi-luminescent Blood Enhancement Reagents
Kimberlie Ploss
Peter Bilous, Chemistry and Biochemistry

The detection of trace quantities of blood at a crime scene requires the use of sensitive blood enhancement reagents (BER). Multiple types of these reagents are available to crime scene investigators. The purpose of this experiment was to compare the performance of several common chemical BER on a variety of substrates that are found at crime scenes in Eastern Washington. The substrates tested included carpet, tile, linoleum, painted sheetrock, plywood, and sandy soil. The reagents used were luminol (Bluestar), phenolphthalein (PHT), and EtOH-based fluorescein with a 3% H2O2 overspray prepared according to the formula used by the WSP. Each substrate was treated according to procedures listed in the WSP CSRT Technical Procedures Manual. Of the reagents used, Bluestar and PHT were more successful in detecting blood as compared to fluorescein over all of the substrates. When considering efficiency and detection success at a crime scene, Bluestar should be used as a chemical BER rather than fluorescein. A color-based BER such as PHT should be used as an additional test for blood.

The God Behind the Mask: The origins of Greek theatre from Proto-Attic Shamanism
Mica Pointer
Terrance Macmullan, Philosophy

This research uncovers the process undergone by Theatre itself as it became an art form after having originated from shamanistic traditions stemming from the earliest religious practices of proto-Attic cultures. This research is guided by a series of questions: What kind of religious practices existed on Attica before the Achaeans arrived? How were those practices at all shamanistic? How did these practices remain a part of Greek religion? How did these remnants become Greek theatre? And finally, how does Greek theatre still bear the fingerprints of the Shamanistic practices they allegedly came from? These are all questions my research has attempted to answer and demonstrate that if Greek theatre has the same birth-place as the Pythia, then they can be closely regarded as one and the same. While I do not possess a definitive “yes” or “no” answer, the connections I made between pieces of information will hopefully prompt some serious consideration as to the origin of Greek theatre to one day provide a clearer answer. The only thing I have to offer is a possibility.

Sidewalk Spielbergs: Panoptical police state and superior protection
Victoria Polanco-Harper
Matthew Hodgson, English

We hear about inappropriate Police-Civilian interaction, but what are we missing? Police, in the course of normal and extraordinary duty, should be actively monitored by the use of body worn video (BWV) and other surveillance. The act of
continuing to watch, of surveillance, changes not just short term behavior, but most importantly long term behavior. It changes the mindset of the person being watched. It no longer begins to matter if they’re actively being surveyed. This is called the Panopticon Effect. In the case of Police-Civilian interactions, Jeremy Bentham’s Panopticon provides an apt metaphor for the way that citizens should hold their Police accountable and for the way that Police should do the same. For the Panopticon to really work, they must not just be watched, but watched continually. They’ll behave if we’re watching.

**Efficacy of Long-Chain Fatty Adics and Immune Response**
*Casey Polmueller*
*Sarah Keller, Anthropology*

This project is a pilot study for a larger project, the purpose being to ascertain whether consuming marine protein is more or less effective than or equivalent to fish oil supplements in the self management of joint disorders, including arthropathies and Sjogren's disorder. The population is made up of volunteers who have a joint disorder. The subjects will be told to take a daily fish oil supplement or eat fish three times weekly. The participants will be also asked to keep a structured journal of their experiences during the study and will be contacted biweekly by the researcher to discuss their experiences.

**Mood and Moral Dilemma**
*Christin Quinn, Anthony Fleck, Damien Miller, Max Bulmer*
*Theresa Martin, Psychology*

The current study measured mood variability and the likelihood of self-sacrificing in the popular footbridge scenario. Participants were given the moral dilemma scenario under positive, negative, or neutral mood conditions. Mood was induced with background symphony music while writing about positive or negative events. It was thought that negativity would spark selfless acts of kindness in emergency responding, while positive mood influences would promote passive responses. Forty-one psychology students responded to the in-person questionnaire, even though five were eliminated due to incomplete responses. The results indicated that there was no difference between positive, negative, or neutral conditions. Mood alterations played no role in the choice to self-sacrifice in the moral dilemma exercise due to possible respondent sample confounds, measurement error, and possible failure to correctly alter participant mood levels.

**Lead and Market Gardens: The health concerns of agricultural novices producing food in the urban central Spokane area**
*Jeri Rathbun*
*Bob Scarfo, Health Services Administration*

This presentation seeks to inform the community about the public health implications of an inexperienced population engaging in urban food production. Specifically, I will outline the potential for lead exposure via urban agriculture in central Spokane. City ordinance 17C.380, known as the Market Garden Pilot Program (MGPP), supports the practice of urban agriculture by allowing products to be grown and sold on residential land. However, MGPP is restricted to an area of Spokane that is classified as a Priority 1 lead exposure risk zone. The examination will not discourage urban agriculture, but instead reinforce the success of MGPP by promoting safe execution. By reviewing health concerns associated with urban agriculture & lead contamination in central Spokane, I hope to influence city officials to educate the community about safe food production. I will discuss the recent Spokane food movement, introduce the public health concerns associated with urban agriculture & lead contamination, & conclude with a discussion on action the city can pursue to mitigate public health hazard.
Introducing A Data Mining-based Approach to Network Intrusion Detection Systems: accuNIDS.NET

Richard Rauschke
Dan Li, Computer Science
Carol Taylor, Computer Science

Recent high-profile enterprise security breaches have reminded us of the constant war being waged between our network and security infrastructures and those that work tirelessly to defeat them. Many of the most high-end enterprise network security technologies still suffer from the same flawed and outdated approaches that have been deployed with decreasing success over time. The majority of current enterprise level NIDS systems and devices still rely heavily on signature-based detection technologies. There are however serious flaws with this strategy. Signatures require updating and rely on human operators and analysts to detect and install signature updates, when available. Next, hackers and potential intruders can access those same updates and thus develop methods to work around existing signatures. To address these shortcomings in current and popular technologies, I propose a machine learning-based Network Intrusion Detection System (NIDS), accuNIDS.NET, that leverages one of the most cutting edge machine learning algorithms from the fields of knowledge discovery and data mining.

A Vindication of Emotional Experience in Philosophical Matters

Mikaila Read
Terrance Macmullan, Philosophy

This paper represents a call to revive the Humean embrace of human emotion and passion in the process of moral reasoning. Drawing on theories of emotion provided by Western psychology, I argue a link between human emotion and ethics as an institution exists. From this connection, I challenge the "reasoning" behind past philosopher's resistance to moral sentiment theory and re-conceptualize what philosopher's have termed, "objectivity." I suggest emotion may function in the moral process as part of reason itself rather than a parasite to it. This point is illustrated through entertaining the potential moral repercussions of a purely rational human being/human race, and through the exploration of human emotion’s ability to correct error in moral decision-making dictated by reason. Finally, this paper defends the incorporation of emotion in moral decision-making from claims to pernicious relativism on the basis that moral absolutists are not so different from their relative counterparts. In efforts to uphold morality, this paper pushes the working union of reason and emotion.

Ancient Anatolian Women Rulers: Queen Ada

Nicolette Reames
Georgia Bazemore, History

Women rulers are rarely mentioned in the annals of history despite their many contributions; Queen Ada of the Hecatomnid Dynasty of Caria in ancient Anatolia is an exception. This essay expounds her accomplishments, one of which is the reacquisition of her kingdom through pseudo-familial ties with Alexander the Great starting in 334 BC. Though heavily influenced by Greeks living in Western Anatolia from at least 650 BC on, the Carian monarchy allowed women to co-rule or rule alone, and they were considered in the determination of succession. This uncommon and then contested system contributed to external and internal conflict in Caria, though there had been two previous women rulers during the Hecatomnid Dynasty in Caria, Artemisia I and II. While there is limited historical knowledge of Ada outside of her interactions with Alexander the Great, and some contestation of when she died, by studying Carian culture and archaeological evidence we can piece together the life of this often overlooked woman ruler.
Coffee Wars
Justine Recor, Jesse Butcher, Cameron Siekawitch, Chris Gray
Theresa Martin, Psychology

Researchers in social psychology are coming to the conclusion that our taste perception may not be as reliable if brand information for a product is available to us (Borzekowski, 2007). Brand equity may play more of a role in our choices than either price or taste (Chen and others, 2012). This research focuses specifically on brands of brewed coffee. Participants engaged in two phases of the experiment. In the first phase, they tasted three sips of the same coffee but each cup was labeled differently. In the second phase, they tasted three different coffee with no brand labels. Results indicated that participants rated a premium brand label more positively than a generic brand label, the same generic brand received higher ratings when a brand label was not present. Our results suggest that brand labels have an effect on taste differences.

Strategies in Determining Sexual Orientation in Potential Dating Relationships
Cara Reidy, Katrina Daniels, Allie Groves
Theresa Martin, Psychology

How do you hit on someone? Do you use specific ways to determine that someone is interested in a dating relationship or are you more subtle? With the growing diversity and acceptance of sexual orientation diversity, we ask "are the strategies we use to determine whether someone is interested in a dating relationship needing to be refined?" We will be presenting initial data on a survey pertaining to this very idea.

ANSYS Bicycle Frame Testing
Will Richards
Awlad Hossain, Engineering and Design

The American Society for Testing and Materials (ASTM) puts out standards for the testing of bicycle frames. These frames need to be tested and need to pass these tests before they are allowed to be sold to the public. These tests are done on every kind of bicycle material from carbon fiber to aluminum to steel or even wood. These tests require large machinery and man hours from a trained professional to conduct. It would be much faster and cheaper for a company to draw a design and test that design in a computer prior to testing in a lab. This is the goal in trying an experiment with ANSYS. If ANSYS can perform these tests and offer accurate results, then there would be no need to do lab testing. If a design would not pass by a large margin, then the bike would need to be re-designed. ANSYS is a powerful tool that can save companies millions and this would be one way to do that.

Levels of Academic, Environmental, Intrapersonal, Interpersonal, Immediate, and Anticipatory Stress Between Majors
Tyler Richter, Kelsey Baycroft, Sarah Boyd, Chelsea May
Theresa Martin, Psychology

This study focuses on the academic, intrapersonal, interpersonal, environmental, immediate, and anticipatory stress levels between different academic major groups. The majors used within this study were psychology and other. With these two groups, there were six t-tests ran between the major group and different types of stress. Specifically, we predicted that there would be no statistically significant differences between intrapersonal, interpersonal, and environmental stress between the groups. We expected the other group to have statistically significant higher levels of academic and immediate stress compared to psychology majors. Finally, we predicted that psychology majors would have statistically significantly higher levels of anticipatory stress compared to other majors. The findings were that there was no statistically significant difference between all the different types of stress. The primary conclusion we can draw from these results is that there is no difference between the amounts of stress different majors experience.
Navigating Sports Journalism's Online Renaissance
Galen Rock
Jamie Tobias Neely, Journalism

Over the last 20 years, journalism has changed and evolved in unpredictable ways. With the explosion of the internet and social media, journalism has become a 24-hour job. Readers want constant updates and news catered to their specific needs. But while print journalism is floundering, online journalism, and more specifically, online sports journalism is experiencing a renaissance. Sports journalism is in the process of reinventing itself into something much deeper and adaptable through blogging, an interactive social media presence, and the versatile use of multimedia. Immediate game breakdowns, detailed and specific analytics and film analysis have widened the scope of readership, while creating a savvy and intelligent sports readership base. Sites like SBNation, for example, have been able to handle both hard-hitting, conventional journalism with light-hearted team specific blogs, free to create and control their own content. The days of bloggers being stuck in their parents’ basement on a computer are long gone. Blogging and social media are the new normal.

Barriers to a Higher Education of Undocumented Students
Moncerat Rodriguez
Martín Meráz García, Chicano Education

The Latino population is the fastest growing minority group in the United States. Undocumented Latinos are often prevented from effectively receiving any assistance due to anti-immigrant legislation laws and policies that deny them from access to much needed resources. Undocumented people experience fear and insecurity regarding their legal status in the United States; therefore, less Latinos are attaining a higher education than any other ethnicity group. Financial Aid is not an option for 1079 students and for that reason it is harder to find economic resources that will help them develop a career. The Dream Act, if passed, would allow undocumented youth to receive legal status but it is up to the states to decide if they provide in-state tuition and financial aid to these students. In this study I will use data from the Pew Hispanic Research, the U.S. Census, and scholarly materials to discuss the enrollment and college graduation rates of Latinos in the United States. This paper will also show that despite the recent spike in college enrollment rates of Latinos they still have a long road ahead of them before achieving parity with Whites.

A Fresh Look at Incentive Effects: Assessing heterogeneity and effort in men’s tennis
Jenia Rousseva
Nathan Skuza, Economics

Current economic theory dictates that effort exertion in tournaments is highest when contestants are homogeneous. This article tests this hypothesis for male tennis players in the final rounds of the four Grand Slam tournaments. The study adds to existing literature by providing several new ways to define heterogeneity of tennis players and also examines whether diminishing marginal utility of income exists for these contestants. Using OLS regression I find that in general heterogeneity of contestants does not have a significant effect on their performance, but it does have a significant negative incentive effect on the favorite player’s effort exertion more often than on the underdog’s performance. Additionally, prize money is not found to be a significant incentive for players to play harder in the final rounds of Grand Slam tournaments.

Arizona's Economics
Juan Sanchez
Martín Meráz García, Chicano Education

With the controversial law of SB 1070 passing in the state of Arizona, which gives the right for enforcement officers to ask any person based on a “reasonable suspicion” for his or her documents proving citizenship or legal status has lead immigration advocates and immigrants nervous prompting an large scale evacuation from the state causing an unexpected
economic crisis. In this paper I will be using the American Immigration Council, the Center of American Progress, Immigration Policy Center, and report from America Voice to explore the economic impact this anti-immigrant legislation had in the state of Arizona. The following questions will be explored; how did the shift in missing workers affect companies and agricultural production? Are illegal and legal job creators fleeing the state as well? How did the housing, tourist, retirees and construction industry affected by this legislation?

**Vegetation Recovery in Drained Reservoirs along the Elwha River, Washington**

*Jarrett Schuster*

*Rebecca Brown, Biology*

Riparian ecosystems are important for ecological functioning of rivers, and are significantly impacted by dams. With over 50% of large dams in the U.S. beyond their life expectancy, dam removal is increasingly being considered to eliminate aging infrastructure and restore ecosystems. Few studies considered riparian ecosystems post-dam removal, so little is known about vegetation recovery rates. The goal of my research is to assess initial vegetation recovery rates following removal of two dams on the Elwha River, Washington. My objective is to determine how time since exposure and soil texture relates to initial species abundance and growth rates. I predict initial species abundance and growth rates will be highest where sediments have been exposed the longest and are the finest. In 2013, I sampled 67 100 m² plots along 10 transects within the two reservoirs, Lake Mills and Lake Aldwell, and recorded vascular plant species present, woody species height, and a Wolman Pebble Count in each plot. Lake Aldwell contained finer textured soils (D50=6.32 vs. 10.50) had higher species abundance ($t_{65} = 6.38$, p-value < 0.0001) and greater woody species height than Lake Mills ($t_{187} = 2.11$, p-value <0.0001). These results support my predictions regarding species abundance and growth rates.

**Dolores Huerta: Activist**

*Kathleen Scott*

*Martín Meráz García, Chicano Education*

Abstract This paper will discuss the Activist Dolores Huerta and the impact she had during the Chicano Movement and the legacy and impact she has had among Chicanos of today. Three main parts are discuss in this paper, the first is how she was empowered to make change, her role in the Chicano Movement as a woman, her non-traditional role as a leader of the United Farm Workers and how she changed the definition of a Chicana. Scholarly sources such as autobiographies and academic peer review sources are used to inform this research. The paper explains how Dolores Huerta played a large role in helping Chicanos and Chicanas have equality in school, work, wages, and society.

**Bone Marrow Transplantation: The only viable cure for Beta Thalassemia Major**

*Joey Segalla*

*Matthew Hodgson, English*

Thalassemia is an anemia which is a result of genetic deficiency in the creation of the beta chain of hemoglobin (Fengl et al. 171). Having been diagnosed with the most severe form of thalassemia (beta thalassemia major), I was prompted to explore what possibilities there were for a cure. In this presentation I will elaborate on why I came to the conclusion that the best possible cure would be to receive a bone marrow transplant which would solve the issues of blood infusions, ferritin overload, and organ failure which are all caused by beta thalassemia major.
Does Compatibility Matter? The Influence of Sleep Preference on the Ability to Engage in Activities.
Nicole Sestrap  
Amani El-Alayli, Psychology

Some people have a biological preference towards being a morning or evening person (“circadian preference”). Previous research has found morningness to be associated with lower levels of anxiety. In a prior study, we examined reasons for this lower anxiety, while exploring the role of compatibility between circadian preference and the dominant social structure. The current study explored this idea further by examining the influence circadian preference has on a person’s ability to engage in various activities and their resulting stress level, while accounting for procrastination. We hypothesized that individuals who seek out activities that they recognize as being unsuitable for their circadian preference would have a higher stress level. Participants completed measures of circadian preference, perceived stress, procrastination, and how suited various activities are for participants’ circadian preference. As data are currently being gathered, results will be presented at the symposium.

Phosphorus and Algae Growth in the Spokane River
Martee Shafer  
Robert Quinn, Geography and Anthropology

Excessive nutrients are one of the most widespread water quality issues in the waterways of the United States. Nutrients such as phosphorus can cause toxic algae blooms that reduce dissolved oxygen levels and impact water quality. Toxic algae blooms are increasing in the Spokane River. Phosphorus fertilizes the algae in the river which results in a decrease in the dissolved oxygen levels when the algae decompose. The largest source of water pollution in the Spokane River is storm drains and wastewater discharge. I mapped the locations of sewer drains and combined sewer overflow using GIS software. The largest sources of phosphorus in the Spokane River in 2001 were from the Riverside Wastewater Treatment Plant (230-450 µg/L) and storm drains (310 µg/L). The natural background limit is 6-25 µg/L. The city recognizes this as an issue and has implemented several plans to reduce phosphorus concentrations. The biggest step in reducing non-point source nutrients will come from education programs to alert the public on their responsibility to keep pollutants out of sewer and storm drains.

Watchmen, Gender Issues, and Homosexuality
Sada Showell  
Paul Lindholdt, English

This paper investigates the graphic novel Watchmen by Alan Moore released in 1985; in particular gender double standards regarding homosexuality. The relationships of Silhouette and Hooded Justice, a woman and a man respectively, are depicted differently. The lesbian relations result in blackballing, while the gay male relations result in a cover-up. Also discussed is the murder of Kitty Genovese, which is mentioned in the graphic novel and covered in the paper because of its significance and also because the murder mirrors the death of the Silhouette and her lover. However, while the paper also covers the European comics that contain gay and lesbian themes and the Japanese genres of yaoi and yuri as well as the subgenre bara, the focus of the presentation is entirely on Watchmen and the gender double standard that is contained within the graphic novel. The presentation also features images from both the graphic novel as well as the film from 2009 which shows what caused the Silhouette’s exclusion from the group and the brutal murder that followed six weeks later.
The Fallen Promises: The Undocumented Hope of a Better Tomorrow
Jessica Silva
Martín Meráz García, Chicano Education

The Latino population is the fastest growing minority group in the United States. As a result they are the topic of conversations in the popular media and politicians make promises that once elected they forget about or can’t fulfill. In 2008 and 2012 immigration reform was the topic that won the votes of Latinos for President Obama; the Deferred Action for Childhood Arrivals (DACA) was an executive order signed by the President to gain sympathy with Latinos and win their votes. The promises of an immigration reform, health insurance and economic prosperity including for undocumented immigrants have not been fulfill. The sources utilize for this research include data from the Latino National Survey, Pew Hispanic Center, the U.S Census and scholarly articles. This paper will addressed the struggles of the undocumented immigrants who are DACA eligible yet don’t have access to some basic services resulting from the Affordable Health Care Act. Finally, the study will show how Latinos have been betrayed by politicians despite their electoral support.

Pecha Kucha: The Education of the Modern World
Joseph Snodgrass
Mindy Breen, Design
Travis Masingale, Design

This manifesto utilizes modern education thinking and post-modern art thinking to inspire intellectual curiosity and wonder. The material was drawn from a wide array of disciplines and theories including history, holism, cybernetics and systems, astronomy, metaphysics, philosophy, humanism and post-modern art.

Capstone Project: Rifle mount for a wheelchair
Joshua Stebbins, Cameron Guffin, Nick Scull, Jeremy Flanagan, Mahmud Elkhoja, Yiyi Wang
Robert Gerlick, Engineering and Design
Martin Weiser, Engineering and Design

There are 3 million people over the age of 15 in the US who are bound to a wheelchair. When technology enables them to do something they couldn’t do otherwise, they gain some freedom and independence back. One such area of potential is outdoor sports. Our capstone project aims to design and build a hunting rifle mount for paraplegics which attaches to an electric wheelchair, using skills developed in the EWU BSME program. The scope of the project includes needs analysis, concept development, design and engineering analysis with tools like SolidWorks and ANSYS, and manufacturing. Our design is shown to be feasible through structural analysis, cost analysis, and manufacturability analysis.

What is the Role of a Fieldwork II Student in an Integrated Co-Occurring Services Program?
Mark Swain, Scott Rice, Shaina Mote, Mike Maynard, Chanel Welsh
Diane Norell, Occupational Therapy

Although the profession of occupational therapy has roots in mental health, less than 3% of occupational therapists are employed in this setting. Previous research has highlighted occupational therapy’s unique focus on supporting functional independence in community mental health programs. In order to understand the unique role of occupational therapy in a previously unexplored mental health setting, we researched the question, “What is the role of a fieldwork II student in an Integrated Co-occurring Services program?” Through journal entries from the student, a focus group with program staff, and client interviews, 4 main themes emerged: assessments, skillset, activity-based approach, and outcomes.
Girls Gone Wild and Other Forms of Contemporary Sexual Expression
Savannah Tarr, Cara Reidy, Martin Sanks, Chad Creighton, Charlie Duranona, David Mitchell
Theresa Martin, Psychology

Is "twerking" nothing more than a contemporary sexual expression? Are we scandalized or bored by videos such as "Girls Gone Wild"? In this presentation, we discuss initial findings from a survey exploring the perceptions and acceptance levels of these "new" forms of public (and publicized) sexual expressions.

I'm not all that: Feeling like an imposter in dating relationships
Savannah Tarr, Darian Andrew
Theresa Martin, Psychology

Clance & Imes (1978) described “the Imposter Syndrome” wherein people (usually women) believed that they have “fooled” others into believing that they are accomplished and fear they will eventually be discovered as the imposter they feel they truly are. That concept is connected to relationships beliefs, highlighting the belief one’s partner will eventually discover how unworthy one is for a committed relationship. In this presentation, we present initial results from a survey of EWU students in which they were asked to complete questions regarding their relationship histories and a series of standard questionnaires including the Experiences in Close Relationships Revised Questionnaire (Fraley & colleagues, 2000), the Clance IP Scale (Clance, 1985) and the Rosenberg Self-esteem Inventory (Rosenberg, 1965). We predict that there will be a positive correlation between IP scale scores and negative experiences in close relationships, particularly on imposter-like relationship questions. We also predict a negative correlation between relationship imposter scores and self-esteem.

Identity and Language Revitalization among American Indians
Samantha Thiel
Michael Zukosky, Anthropology

Since the onset of European migration into North America, indigenous North American languages have been in decline. This has caused an upset among the numerous American Indian communities and affected their identities as people in an increasingly Anglo-American society. Language is closely associated with identity, and if these languages continue to die out, then it could further erode these communities. The purpose of this paper is to address the question of how language is associated with identity, and how language revitalization is a necessary part of maintaining American Indian identity. A study of literature and research ranging from the Yukon to the Northeastern United States reveals how language revitalization has boosted identity, improved Native self-image, the roles of elders, and cultural values, resulting in a positive impact socially on indigenous communities. Language revitalization should thus be supported and encouraged because of the social benefits it offers.

Roman Polanski’s Repulsion: A masculine invasion of feminine space
Bryce Thomson
Pete Porter, Film

This presentation is an analysis of Roman Polanski’s Repulsion and the conflict between genders within the film. Specifically focusing on the treatment of masculine versus feminine spaces, and the intrusion of masculinity into feminine spaces.
From Evidentialism, *Ex Nihilo* Comes: Is *Ex Nihilo* by “natural light” consistent with the Cartesian Skeptical Method?

Vladimir V. Titkov  
Kevin Decker, Philosophy

René Descartes is justifiably famous for subjugating all his knowledge to the epistemologically destructive apparatus of hyperbolic doubt. Indeed much contemporary epistemology is indebted to Descartes’ fashioning of skepticism’s “modern image.” Yet many contemporary philosophers are dismissive of the Cartesian project on the basis that it makes too many presuppositions and remains uncommitted to its own skeptical demands for certainty; among Cartesian skepticism’s presupposed principles is the doctrine of *Ex Nihilo*, Nihil Fit – “from nothing, nothing comes.” Credence to this principle remains controversial and has generated an enormous amount of scholarly criticism. I wish to offer an evidentialist defense of *Ex Nihilo*’s axiological utilization by contending that *Ex Nihilo* as evident by “natural light” gains instantaneous logical ground upon the acceptance of Cartesian skepticism’s evidentialist precept.

Just How Logical is Hegel’s ‘Logic?’ – A Metaphysical Interpretation

Vladimir V. Titkov  
Kevin Decker, Philosophy

Hegelian Logic is a systematic ontological science that follows the evolution of thought as it thinks through the necessary progression of objective concepts that expand to ever-increasing levels of determinacy. The purpose of my research is to offer a metaphysical interpretation of Hegelian Logic. I begin by providing an account of the philosophical background crucial to understanding Hegelian Logic; this will warrant an exegetical discussion of G.W.F. Hegel’s philosophical predecessors and their subsequent influence on Hegel. I will then analyze Hegel’s radicalization of Immanuel Kant’s metaphysics and argue in support of a subsequent metaphysical interpretation of Hegelian Logic. Lastly, I will provide a narrow and in-depth assessment of an exemplary metaphysical progression of objective concepts found in the first Dialectical triad of “Being-Nothing-Becoming” of Hegel’s “Science of Logic.”

Nihilism and Affirmation: An inquiry into evil

Gregory Vanwagenen  
Christopher Kirby, Philosophy

The concept of evil was divorced from theology by Immanuel Kant. Since then, the notion has been popularly located in two places: Within the human psyche, and outside the walls enclosing our shopping-mall utopia. Evil is the domain of Osama Bin-Ladin, that outsider who hated us for our freedom. Evil is also the domain of Cherie Lash Rhoades, the spree killer who murdered the elders of a Native American tribe in Alturas, California; finishing off her victims with a butcher knife when she ran out of bullets. This self-evidentiary analysis of evil, with its mutually supporting political and psychological premises, presents us with an irreducible internal contradiction. We think we know what evil is, and yet we are endlessly frustrated by our apparent impotence to address it. This paper will explore new methodologies for the exploration of the concept of evil, emphasizing a return to a holistic identification, while providing a plausible outline of future praxis, all in the hope of a more effective rétrécissement.

Examining the Effects of Zero Tolerance Policies in Schools and the Need for Alternatives to Suspension Programs

Jackie Vaughn  
Kim Richards, American Indian Studies

Since the implementation of Zero Tolerance policies in schools, it has been the most frequently used and prevalent model of discipline in American schools. Much research has been done that has shown a disturbing trend that is a consequence of
employing such punitive discipline approaches. Children are being funneled into what is called the “school to prison pipeline” where punitive forms of discipline are pushing students out of the school system and into the juvenile and criminal justice system. Application of these policies is disproportionately affecting students of Color as well. A possible solution to this issue would be the implementation of alternative to suspension programs. Much of the problem that is connected to the use of punitive discipline approaches stems from the domino effect of suspension policies. By implementing alternatives to suspension programs, the push out rate could be reduced which in turn would help to slow the funneling of students into the “school to prison pipeline.”

**Invasive Brook Stickleback on Turnbull National Wildlife Refuge, Spokane County, Washington**

*Jessica Walston*

*Allan Scholz, Biology*

Brook stickleback (BS), an invasive fish species was discovered on the Turnbull National Wildlife Refuge (TNWR), Washington in 2002. Brook sticklebacks compete with fish and waterfowl for food resources, thus its presence can restructure communities leading to a cascade in trophic interactions and a loss of biodiversity. This study compared the relative abundance and catch-per-unit-effort (CPUE) of fish species collected by electrofishing and minnow trapping at 24 sites in both years. In 2002, 12928 fish were collected, (speckled dace (CPUE=0.09), redside shiner (CPUE=0.08), brown bullhead (CPUE=0.01), BS (CPUE=1.76), rainbow trout (CPUE=0.08), kokanee salmon (CPUE < 0.01), and pumpkinseed (CPUE=1.34)). In 2013, 15921 fish were collected (speckled dace (CPUE=0.01), redside shiner (CPUE=0.07), brown bullhead (CPUE < 0.01), BS (CPUE=6.01), and pumpkinseed (CPUE=0.35)). Our survey documents a decline in the relative abundance of native fish coincident with an increase in brook stickleback on TNWR and provides an important baseline for informing management practices.

**Albeni Falls Dam Restricts Movements of Bull Trout to Natal Tributaries**

*Shawna Warehime*

*Allan Scholz, Biology*

The goal of the study was to learn if bull trout (BT) (*Salvelinus confluentus*) below Albeni Falls Dam, Idaho would migrate to natal tributaries to spawn if relocated above the dam. This dam has no fish passage stopping BT from returning to their tributaries. In 2004 and 2008 to 2013, 18 BT (age class 3-6+) were collected below the dam by electro-fishing, tagged with radio transmitters and released above the dam. They were tracked by 11 radio receivers and by mobile tracking. Tributaries of genetic origin were predicted by comparing DNA samples of BT against a database of 37 BT populations throughout the Lake Pend Oreille and Clark Fork River system. Telemetry research determined if the natal tributaries matched the genetic predictions. Of the 18 monitored, 15 returned to Lake Pend Oreille, one to the Priest River and two entrained at the dam. Of the 15 returning to Lake Pend Oreille, eight returned to predicted tributaries, two to unpredicted tributaries and five were undetected. Initial results show that BT will return to their natal tributaries for spawning if moved above the dam.

**Chicano Culture Lost Through Younger Generations in America**

*Bailey Webb*

*Martín Meráz García, Chicano Education*

As new Generations of Chicanos are raised the dominant culture begins to break through the Chicano culture that had been so prominent in previous generations. Having been the fourth generation born in the United States my Chicano culture is much less than that of my mothers and my grandparents. Utilizing my family as an example and Scholarly Articles this research paper will explore the cultural assimilation of Chicano’s to American culture as well as how it will continue to evolve in the future. This paper will also look into the benefits or lack thereof impact of the assimilation process both for Chicanos and for the United States. Furthermore this paper will investigate how cultural assimilation is taking place despite Chicano families striving to keep their culture alive through younger generations in America.
Gender Variance in the Classroom: Why does it matter and what are the challenges of supporting these children

Betsy White
_Ning Li, Public Administration_

Many people are under a misconception that gender and sex are synonymous. They do not understand that a person’s gender might not automatically reflect a person’s sex. This perception fails to take into account that some people identify with a different gender than their assigned birth sex. Gender variant children are marginalized in educational settings because educators, administrators and support staff are unprepared for these children when they do enter their classrooms and schools. Within the elementary school setting, topics of gender diversity and sexual orientation are considered off limits. Within the junior high and high school setting, these topics are still not adequately being addressed as many schools teach abstinence only programs that do not address LGBT issues. School curriculums rarely give examples of transgender and gender-nonconforming people, they argue that children are not old enough to understand these concepts. The deliberate attempt to keep gender variance topics out of schools lead gender variant children to believe that they are not accepted in schools or within mainstream society. It is because of this that these children experience more social disadvantages and are at an extremely higher risk for depression, substance abuse, unprotected sex, and suicide.

Perceptions of Employers in Spokane County Regarding Employing Individuals with Autism Spectrum Disorder

Shannon White, Curtis Pearson, amylynne sargent, Jennifer McQuillan, Molly Hobbs,
_Roberta Russell, Occupational Therapy_

There is limited research available addressing employment opportunities for adolescents or adults with autism spectrum disorder (ASD). With the growing population of adults with ASD in the United States, there will likely be an increase in the demand for support to help them live independently. The purpose of this research is to obtain employers’ perceptions on employing individuals with ASD. Businesses in Spokane County were mailed invitations to participate in an on-line survey. Results will be analyzed and shared with local agencies for potential program development.

Chicano Impact on U.S. Comedy

John Whiting-Call
_Martín Meráz García, Chicano Education_

Laughter, smiles, and happiness are all feelings that transgress through cultures and can be portrayed by comedians. This paper will be discussing the impact that the Chicano population has on today’s comedy. A brief history of Chicanos in the comedy business will be discussed. The fine line between racially offensive and stereotypical jokes will be evaluated as well. This paper will also highlight some of comedy’s most famous Hispanics, and analyze their comedic routines and childhood to learn how their culture and customs have influenced their sense of humor. Finally, the concept of how, through humor, Chicano culture can be introduced, accepted and brought closer to others, specifically Caucasian culture, will be dissected.

The Problem Rests Not With The Pupils

Jennifer Wilcox
_Christopher Kirby, Philosophy_

My paper addresses the problems with our current educational system. I have come up with a new solution I call the ISEE approach to education. It stands for Inspire, Socialize, Educate and Empower. This system seeks to do more than just give students the basic educational survival skills, but makes our schools aware and accountable for all areas of student growth and education. We should not just teach kids, but truly inspire them by showing them what new possibilities open up through education. The ISEE system also addresses socialization and how students interact with each other and the community. Finally, it also seeks to empower kids to truly take an interest in themselves, and to work hard to achieve
goals they set. I assert that schools shouldn’t just be asking, “what is the bare minimum we must do for our students?” but our education system should be asking, “what would really benefit kids throughout their lives, and get them heading in a positive direction?”

Information Development as a Model for Systemic EFL Instructional Reforms In Ecuador
Daniel Williamson
Tracey McHenry, English

Information development is a technical communications tool most commonly used in documentation for project management particularly when a new product is being unveiled in tandem with a new user interface. Because the tasks involved in information development are chiefly the responsibility of middle-management, who, in turn, must collaborate with all stakeholders, respond to both higher and lower levels of management, prepare documentation for both internal and external users, and meet timeline and budget constraints, they should prove to be useful in developing a curriculum that is intended to be implemented systemwide. Ecuador is currently investing a great deal of resources into rapidly improving its education system. They are in the process of bolstering the instruction of English as a foreign language (EFL) and nationalizing EFL curriculum. Rapid turnover within the nation’s education ministry, however, results in frequent changes in direction. Applying the best practices of information development to reforming the EFL curriculum would likely save time, effort, and money.

Self-Enhancement Bias in Self-Partner Personality Comparisons
Kara Winkleman, Blake Gimbel
Amani El-Alayli, Psychology

Previous research has shown that people tend to hold favorably distorted images of their relationship partners, minimizing their faults and even seeking out virtues in existing faults in order to view their partner more favorably. In addition, studies have shown that people tend to describe themselves as possessing more desirable traits than others. This study was designed to test the hypothesis that people would attribute more favorable traits to themselves than to their partners when participating in a self-partner comparison. Results revealed that participants rated positive traits as more characteristic of themselves than their partners. This bias was associated with higher self-esteem and lower relationship satisfaction. This research is important because feelings of superiority to one’s partner could influence relationship longevity.

Life History of The Umatilla Dace (Rhinichthys umatilla) in the Colville River, Stevens County, Washington
Bryan Witte
Allan Scholz, Biology

The Umatilla Dace is a rare cyprinid fish that occurs in the Pacific Northwest. Here I present the first information ever recorded about the life history of the Umatilla Dace in Eastern Washington. In summer 2013 Umatilla Dace (n=163) were collected in the Colville River downstream of Meyers Falls by backpack electrofishing. Scale samples (n= 45), stomach samples (n=25) and egg skeins (n=15) were collected. Ages and total length (TL) at age was determined from scales using the direct proportion method. Average back calculated TL at age was 45mm (Age 1), 64mm (Age 2), 84mm (Age 3) and 101mm (Age 4). Umatilla Dace diet by weight was comprised of 47.45% detritus, 47.40% macroinvertebrate parts, 3.64% unidentified caddisflies (Trichoptera), 1.49% net spinning caddisflies (Trichoptera: Hydropsychidae), 0.02% tube net caddisflies (Trichoptera: Psychomyiidae), and 1.11% pebbles (likely from caddisfly cases). Fecundity for the 15 individuals ranged from 474 eggs for an 86 mm long, 6 g female to 2,038 eggs for a 115 mm, 15g female.
Donor Sperm and the Decisions of Disclosure
Joy Wood
Sue Wright, Sociology

The women and families who choose to use donor sperm for conception belong to a hidden and hard to reach community. The rights of the women, their children and the donor are at stake, and the need for disclosure has become nearly mandatory. While media has made it easier for families to disclose to their children how they were conceived, it presents a problem to those who wish not to be contacted. This research explores the role of media, rights, and disclosure for children conceived via donor sperm and their families.

David Hume and Arguments for Design
Devon Young
Kevin Decker, Philosophy

The 18th century Scottish philosopher David Hume is famous for his destructive critique of natural religion, as found in his book, the Dialogues Concerning Natural Religion. David Hume addresses six potentially fatal flaws with natural religion that originate from his radical skepticism of what can be known as true knowledge. This paper seeks to explain and offer potential refutations of two arguments in depth; namely, can we know of design a priori (before experiencing it) and can we know that kind A always causes kind B?

Psychotropic Medications in Long-Term Care Facilities: An Analytical Review of a CMS Policy
Yevgeniy Zhupikov
Amanda Reedy, Social Work

This is an analytical review of the Center for Medicare and Medicaid Services (CMS) policy 483.25 (l) F329 that addresses the unnecessary use of psychopharmacological medications for dementia and dementia related behaviors in long-term care (LTC) facilities. Five criteria that define unnecessary within LTC facilities are: excessive dosage of medication; usage of medication over an excessive period of time; improper monitoring of medication; lack of indication of its use; or duplications or contradictions of other interventions or medications. This policy dictates that LTC facilities must conduct gradual dosage reduction and attempt behavioral interventions as the primary treatment for dementia and dementia related behaviors. LTC facilities implementing the CMS policy report an increase in quality of life of their residents. The presenter will describe and discuss the objectives of the policy, the degrees of implantation of the policy at LTC facilities across the United States, and the impact on the quality of life of residents with dementia or dementia related behaviors.
SNP Analysis of ATP 6 and Cytochrome b mtDNA from *Mammuthus columbi*
Kaitlin Abell, Lucas Arnold
Randall James, Biology

Mammoths thrived in the Pleistocene across areas in the United States, Canada, northern Eurasia, and largely in east Siberia, into the late Pleistocene era where they later became extinct. (Nystrom, 2012). These mammoths varied in species such as the Woolly Mammoth, Columbian Mammoth, Jefferson Mammoth, and a smaller species known as Mastodons (Yansa; Adams, 2012). Across the world remains a fossilized history book of what these creatures truly were. However current research on these organisms is very slim in that a lot of what we know are hypotheses based on fossilized evidence. The Woolly Mammoth and Columbian Mammoth are the most commonly found and researched species but outside of their mitochondrial genomes the lives that these creatures lived is still raising questions in the scientific community. In our research we are using DNA sequencing to assess potential loci that would allow for precise identification. We are assessing loci for D-loop, ATP 6, and Cytochrome B for potential markers as well as an assessment of maladaptive SNPs in the same metabolic mtDNA loci.

U.K.N.O Android Mobile Application
Julian Agloro, Michael Probst, Toshiaki Ueno
Dan Tappan, Computer Science

The primary goal of this Android mobile app is to provide an easy access portal to all pertinent information of a select college. It also aims to increase event participation and provide an easy marketing opportunity for the target college; all while making the experience fun and enjoyable for users. The app enables users to view upcoming campus events, teacher and course information, study aids, intramural and club sports information, an interactive campus map, and also provides links to official university websites. In addition, the app will notify users of important university notifications such as class cancellations, snow days, etc. This instance of the app is made for Eastern Washington University but it can be personalized and marketed to any school or college university.

EWU Online Course Evaluator
Sumayah Almohanna, Regan Fencl, Mick Warren, Lenna Wenke
Dan Tappan, Computer Science

EWU provides an opportunity for students to evaluate faculty each quarter for each course they currently take. This is currently done on paper, which is then typed into a computer by a neutral party to protect student anonymity. Our project is to create an online application that would allow students to submit evaluations electronically. This application will allow the department to save labor hours and paper. Instructors can submit questions, specific to their courses, for which they want to receive feedback. The administrator can submit questions on behalf of the instructors, create other administrators, update course information, and generate reports based on collected data.

Solve School Bus Problem Using Technology
Nasmah Alnaimi
Carol Taylor, Computer Science

The characteristics of school organizations and their reactions to change are critical to success in educational reform. Organizational change is necessary to the health of an organization and the well-being of its members. In schools, where staffs are responsible for large numbers of students, the need to reduce complexity is especially important. Organizational change, in order to be effective and sustainable, may need to use technology, and it must accommodate the need to
simplify complexity in schools. In this project, I will provide a computerized system to assist in management and operation of school services. This will help by reducing the use of paper and improve the likelihood that parents will have better information that is timely and more precise. Broadening parental communication will improve interaction between the school and the community.

Female Referees
Taylor Anderson
Kelly Cullen, Economics
Diana Emmons, English

I want to expand a previous project which is now used as reference for virtually 500 people. My goal for this research was to spread information on a silently on-going problem. I came up with questions since I recently received certification as an official and had first-hand experience. As my research began, I quickly discovered answers would not be easy to come by. I soon found that rather than finding answers, I only began to ask more and more questions. Therefore, I soon decided to stop asking questions and start telling facts. Throughout my web page, I share with readers other resources I had found and what they had discovered. Since past studies regarding this matter has scarcely been done, whatever I found was used. After I collected other resources’ data, I began to build my own. I narrowed down my questions and started finding answers. I also interviewed people related to the topic, opened a blog page for viewers to post their thoughts, and once my web page looked more developed, added a survey so I could collect my own data.

19-year-old Male Collegiate Track and Field Athlete with Osteochondritis Dissecans of the Medial Femoral Condyle
Elishia Andrada, Emily Flannery, Alexa Haberlack, Amanda Humphrey
Jeffery Kawaguchi, Physical Education, Health and Recreation

Osteochondritis dissecans (OCD) is an uncommon pathological condition that develops within a joint, most commonly in the knee (Obedian, Grelsamer, 1997). OCD is characterized by partial or total separation of a fragment of subchondal bone and its overlying articular cartilage, as a result of trauma or avascular necrosis. Following the diagnosis of OCD the most effective and clinically proven course of treatment is surgical intervention (Gudas, Stankevicius, Monastyreckiene, Pranys, Kalesinskas, 2006). This case study will discuss a 19 year old male collegiate track and field athlete who had been diagnosed with OCD of the medial femoral condyle in 2013. It will also examine and report the use of micro-fracture surgical intervention for OCD; as well as the rehabilitation, post-operative complications, and present prospective surgical treatments.

Creating Reusable Air Dusters
Samuel Andres, Steven McEvoy, Lance Hart
Kyle Larsen, Engineering and Design

Each year millions of consumers use disposable compressed gas dusters, more commonly known as canned air or Dust-Off for uses including photography, cleaning electronics, and for other off label uses. These products utilize a compressed gas, which include greenhouse gases (GHG) to produce a jet of air. This gas, which is used as the air propellant, negatively impacts the environment by adding GHGs and increases global warming. Our project is to solve this issue by creating a safe, affordable, and convenient method to cut down the use of canned air (of which 31 million cans are used every year). We plan to design a way so that the cans can be refillable safely and easily, without the use of a propellant, and maximize the lifetime of one can. There are products that already try to remedy this issue, but are not feasible replacements. We will design and try to build a prototype that is feasible, and will hopefully bring down the amount of GHGs that are released into the atmosphere.
Parachute Deployment Analysis
Samuel Andres, Josh Herber, Erick McCarthy, Andrew Nilson
Martin Weiser, Engineering and Design

In hobby rocketry, rockets can be time consuming and expensive to construct, especially to accomplish a successful launch/retrieval. One important aspect of rocket flight is the parachute deployment system, which in the past has been known to fail due to a lack of information about the forces generated during deployment, particularly at elevated velocities. Rocketeers then either overbuild to handle unrealistic forces, or take the risk of deployment failure and ballistic recovery. Our capstone project is to analyze the deployment of a parachute as a function of time in order to eliminate this risk. We intend to create an apparatus that can safely deploy a parachute out of the back of a vehicle, while being able to collect data that represents the force acting on the parachute over a given period of time. We will examine variables that may influence these forces such as packing methods and harness material. Our results will hopefully give a better understanding to the hobby rocket community by way of physical data.

22-year-old Women’s College Volleyball Athlete with a Patellar Dislocation, Treated Non-Surgically
Maria Aparicio, Liz Gelhaus
Garth Babcock, Physical Education, Health and Recreation

Primary patellar dislocations often occur in the athletic population and because of its complexity it can be a season ending injury. The incidence of first time patellar dislocation has been reported as approximately 7 per 100,000, whereas females are more likely to be affected than males (Hing, Smith, Donell, Song, 2011). However, the best course of treatment has been one under debate for several years. The purpose of this study is to review and discuss the mechanism of injury, evaluation, treatment, and prognosis of a female collegiate volleyball player who suffered from a primary patellar dislocation. The injury occurred midseason of 2013 during practice. An MRI confirmed the patellar dislocation along with complete tears of her medial patellofemoral retinaculum and ligament. A conservative approach was chosen for her treatment; furthermore, this study will compare the non-surgical versus surgical treatments of this injury along with why this path was chosen for her and the process of getting her back to playing volleyball.

Cheney Fracture Zone
Zachary Arms, Austin Ulakovich
Chad Pritchard, Geology

The Cheney fracture zone (Cheney, WA) is an enigmatic structural feature that has been presented on geologic maps for decades, and yet very little is known about the origin of these structures. We explore if the Cheney fracture zone is manifested from deeper structures in the basement using geophysics and fracture analysis. Pictures of preserved faults indicate that motion was most likely lateral as vertical offset is not seen. The orientation of the Cheney fracture zone correlates with regional lateral faults. These fractures, along with paleo-drainages, may strongly influence local geohydrology as they may influence rates of infiltration of ground water.

Effects of Guarana (Paullinia cupana) on Cognitive Performance, Heart Rate, Body Weight, and Anxiety Related Behaviors in Rats
Tiffany Armstrong
David Daberkow, Biology

Guarana, Paullinia cupana, a plant from Central America has been used to treat anxiety, control weight, and to increase cognitive function. The goals of this study were to determine the effects of guarana on weight, anxiety, and foraging behaviors. Three treatment groups of male Sprague-Dawley rats were given 0.5 mg/kg, 5.0 mg/kg or 10.0 mg/kg guarana
seed powder, and a control group that was treated with the vehicle. Dependent measures included change in weight (g), and heart rate (bpm); anxiety measured as percent time spent in open arms of elevated plus-maze; and cognition measured as number of re-entries into arms of the radial arm maze. No significant differences in weight were observed. There was a significant decrease in heart rate in the 0.5mg/kg treatment group (p=0.008). Additionally, a significant decrease in arm re-entries was seen in the 0.5mg/kg treatment group (p<0.032). The results of this study suggest that guarana is not effective in controlling weight or anxiety, but could have an effect on cognitive performance.

Heartbeat Location Assistance for the ECG
Sarah Bass
Dan Li, Computer Science

The electrocardiogram (ECG) is the main source of heartbeat analysis throughout the medical community, due to the distinctive appearance of the signal at the time of each beat. There are other signals that also exhibit distinctive patterns at the time of each heartbeat. Analyzing the ECG only can be problematic because ECG data can be noisy, appearing as though multiple beats occurred. The aim of the PhysioNet CinC Challenge 2014 is to analyze the association between a variety of signals and the ECG in order to predict heartbeat location with greater accuracy. The goals of this research, after analyzing ECG along with up to 7 other signals are: (1) Generate templates of the signals at the times of each annotation in the training set using the k-means algorithm to group like beats together; (2) Find the template that is the shortest distance from the values exhibited by signals in the test set; (3) If said distance is within a certain threshold, annotate the beat. By achieving the stated goals this research will aid the medical community in locating heartbeats with greater accuracy.

Efficacy of Combining Nitrogen Fixing Bacteria as Bio-Inoculants
Christopher Bateman, Joshua Riehie
Suzanne Schwab, Biology
Robin O'Quinn, Biology

As the world’s population continues to rise, demands on agriculture do as well. Because of this, nitrate contamination also rises from the expanding use of commercial fertilizers. For this reason and economical ones, there is a constant demand to improve the efficiency of agriculture and reduce wastes and contamination. Among various methods, bio-inoculants have been studied as alternatives and supplements to fertilizers with limited success. The genus Azotobacter has been shown to fix nitrogen, but not enough to replace fertilizer, while Azospirillum has been shown to increase the efficiency of nitrogen uptake and improve root growth among various species. Our study aims to compare Azotobacter chroococcum, Azospirillum lipoferum, and the combination of both to separate fertilized and unfertilized controls as a fertilizer supplement or replacement.

Automated Program Grader
Danny Beaumont, Ian Davies
Dan Tappan, Computer Science

For a teacher, giving exams and assignments involving student programming can be a slow process. The teacher must look at and run each submission individually and manually. Additionally, because student computers and programming environments aren't always set up identically, changes to submissions are sometimes necessary to run them on the instructor's computer. We aim to assist this process by providing a website that can be accessed by students via school's lab computers, student computers, and mobile devices. This provides students and faculty a system for submitting and automatically running and assessing student programs in a variety of programming languages. When a student enters their code in the website, it is ran and checked for errors. The assignment can then be submitted to the instructor, who can view the submission and the system's automated testing results without having to download and run the assignment manually. This project is being implemented primarily using PHP and MySQL. It aims to support submissions in the C, C#, C++, Python, and Java programming languages.
Geotechnical Engineering: Optimum moisture content for compaction of soil fill at a residential construction site on Five Mile Prairie, WA
Kyle Belock, Zach Arms
Richard Orndorff, Geology

The residential construction site is located at 9117 Scarlet Sky Drive on the southwest margin of Five Mile Prairie, WA. The footprint of the proposed structure overlaps two soils. Near the road is fill material brought in to form the extended roadbed. Further from the access road is the extant soil that formed in place on the prairie. The site is triangular in shape and has an area of 18,731 square feet. It sits at 2,400 feet above sea level and the property drains to the south, sloping from 9-30 degrees. Some grass exists on site, as well as evidence of mass wasting in the form of basalt boulders that have moved down slope. This study presents results for moisture content and compaction of soil fill according to ASTM standard D698. Compaction prior to construction increases unit weight and shear strength for soil, hence increasing resistance to settling and structural damage.

Wilckodontics
Stacia Bruner, Carly Thomson, Jennifer Cook, Mackenzie Black
Arthur Dimarco, Dental Hygiene

Wilckodontics is an Accelerated Osteogenic Orthodontic (AOO) surgery that shortens the duration of wearing braces as well as preserves the roots. It was created by two brothers in 1995. It was created for people who already have all of their adult teeth and want to have their teeth corrected in a short amount of time. This procedure was also created to reduce the amount of root resorption. First, the client is placed in the braces. Once braces are placed on the teeth, gum flaps are cut along the teeth exposing the alveolar bone. The surgeon will then decorticate or score the bone with a surgical bur, this creates bone blocks around each tooth. They place bone grafts and antibiotics next to it under the gum flaps before they sown closed. After approximately a week of healing from the procedure, the braces are adjusted every 2 weeks as needed. With the "softer bone" or bone regeneration from the surgery, the teeth can be straightened and the bite fixed in as little as three to nine months. This time scale is shown to be about four times as fast as traditional braces.

Geotechnical Engineering: Unconfined compressive strength of soil fill at a residential construction site on Five Mile Prairie, WA
Neil Campbell, Nicole Butz, Rex Lloyd
Richard Orndorff, Geology

The residential construction site is located at 9117 Scarlet Sky Drive on the southwest margin of Five Mile Prairie WA. The footprint of the proposed structure overlaps two soils. Near the road is fill material brought in to form the extended roadbed. Further from the access road is the extant soil that formed in place on the prairie. The proposed project will be constructed on an approximately 19,000 square foot lot. The fill soil contains abundant basalt cobbles and loess with a depth of 8-10 feet. It has a slope of approximately 20 degrees until it contacts the in situ soil. The in situ soil has a slope of 13 degrees and exhibits lesser range in grain size. This study presents results for unconfined compressive strength according to ASTM standard D2166-85. This test reveals strain behavior of fill soil resulting from applied compressive stresses and allows identification of yield strength (elastic/ductile boundary) and ultimate strength (point rupture) for soil, characteristics that play an important role in the ability of soil to support a structural load.

Shear Zone at Needham Hill- Evidence of a Metamorphic Core Complex
Neil Campbell, James Warren
Chad Pritchard, Geology

Needham Hill is located to the north of Cheney, WA and just east of the town of Four Lakes. Recent studies have proposed that this area is core complex, offset from the Spokane dome by dextral faulting. In this study we attempt to identify microstructures and structural orientations of the proposed dome. Foliated and cataclasite granite dikes exhibit the
brittle deformation expected in the upper (tensional) layer of a metamorphic core complex. A sample taken from below the brittle zone exhibits imbricated quartz and feldspar minerals with foliated minerals of biotite and sillimanite around fractured quartz grains, and classified as fibrolite-bearing quartz schist. The lineated sillimanite is indicative of high grade metamorphism and the composition of the surrounding rocks at the exposures includes feldspathic quartzite, micas, and granodiorite and may represent the shear zone that accommodated the detachment of the upper portion of a core complex.

**The Evaluation of Working Memory Through the Digit Span Task**

Dana Case, Patrice Frazier, Leah Ruiz, Mauricio Zumba, Trevor Fry  
*Jonathan Anderson, Psychology*

In this study, working memory was evaluated using the WAIS-IV Digit Span Task. The Digit Span Task consists of three sections: a forward, backward and numeral sequencing tasks. Each section consists of eight items, each with an increasing numeral count. Ninety-six participants, from the Eastern Washington University student population, were tested using the WAIS-IV Digit Span Task. The data will be analyzed using SPSS software. We hypothesize that within each of the three Digit Span tasks, participant accuracy will decrease as each item's difficulty increases. Also, as the Digit Span tasks progress in difficulty, (from forward, to backward, to numeral sequencing), participant accuracy will decrease.

**Bioretention Efficiency in Zinc Removal**

Jane Cavalletto, Alec Montemayor  
*Justin Bastow, Biology*

Pollution and other harmful human influences on the environment have become of increasing concern. Bioretention system technology has been shown to be highly effective in removing heavy metal pollution from storm water runoff. As a result, bioretention systems have become a popular method of heavy metal pollution removal in industrial areas. This study examined zinc removal using bioretention technology compared with standard asphalt and concrete road conditions. Storm water with high concentrations of zinc was synthesized by adding 200µg/liter zinc to tap water. Zinc concentrations were measured in effluent collected from bioretention and roadway models. Mean zinc concentration in effluent from the bioretention system was -0.0021µg/L for the first trial and 0.0020µg/L for the second trial, therefore achieving 100% zinc removal. The mean zinc concentration in effluent from the roadway model was 0.0012µg/L for the first treatment and 0.0325µg/L for the second treatment, therefore achieving 98% zinc removal. Our data matched previous studies reporting 90-100 % zinc removal rates in bioretention systems, however it showed no statistical difference between bioretention systems and concrete asphalt systems.

**Case Study of a 21-year-old Male Collegiate Football Player with Bilateral Acetabular Labral Tears**

Jessalyn Coleman, Jake Howell  
*Garth Babcock, Physical Education, Health and Recreation*  
*Jeff Kawaguchi, Physical Education, Health and Recreation*

This case study will describe a 21 year old male division one football player following bilateral arthroscopic hip resection and labral repair. The goal of this case study is to observe and follow the rehabilitation process from days after the surgery all through return to play procedures in the spring. The protocol for rehabilitation is set out from an orthopedic surgeon and supported through the athletic training staff. Return to play procedures are determined from position specificity and coaches direction. This process involves gathering information related to his past medical history, as well as finding scholarly research articles to support and further the knowledge of these injuries and procedures.
Gender-Bias and its Influence on the Accuracy of Eyewitness Identification of Perpetrators
Elizabeth Conkey
Kayleen Islam-Zwart, Psychology

Previous research has looked at how eyewitnesses relate to victims of crimes, but few have looked at how eyewitnesses identified with the perpetrators in any capacity (Block, Greenberg & Goodman, 2009). Few have looked at how gender-bias influences eyewitness identification of the perpetrator and characteristics (Butts, Mixon, Mulekar, & Bringmann, 1995; Wright & Sladden, 2003). The purpose of the current research was to look directly at how gender influences the accuracy of eyewitness identification of a perpetrator. It was hypothesized that women would remember more details about a female perpetrator than a male perpetrator and conversely, males would remember more details about a male perpetrator than a female perpetrator. Participants are an anticipated 200 college students volunteering in exchange for research credit. Participants observed what was construed as a crime while engaging in a monitoring task, complete measures of demographic information, trauma history, criminal involvement, and world beliefs. Results, discussion, and future directions will be discussed.

Enhancing Academic Success: The role of a mental skills training intervention on English composition students
Brittney Conway
Jon Hammermeister, Physical Education, Health and Recreation
Lynn Briggs, English

This study examined the use of a mental skills training (MST) program to enhance freshman English composition students’ psychological resilience, study habits and other mental skill-related variables. A unique aspect of this intervention lies within the different treatment conditions utilized for delivering the MST material. The four conditions of this intervention included: a) a main treatment condition delivered by an instructor trained in sport psychology (n = 30), b) an alternative treatment condition delivered by an English department graduate student (n = 41), c) a themed treatment condition delivered by an English department professor (n = 14) and d) a control condition (n = 42). Over the course of 10 weeks participants in the treatment conditions were exposed to mental skill constructs which were tailored to participants’ academic performance and success in the course. Repeated measures ANOVA results revealed that participants in the main and themed treatment conditions reported higher scores on a number of the variables of interest.

Visual Sediment Deposition Following Dam Removal on the Elwha River, Washington
Kimberly Cook
Rebecca Brown, Biology

Dammed rivers trap sediment in reservoirs, causing decreased downstream sediment deposition. Dam removal rapidly releases this sediment to downstream reaches. The removal of the Elwha and Glines Canyon Dams on the Elwha River, Olympic Peninsula, Washington provides an opportunity to observe this sediment transport. The objective of my study was to document the sediment deposition on different sections of the river. I predicted heavy sediment deposition in the river channel and riparian zone downstream from the dams. To document this, I compared photographs of 28 plots above, 40 plots between, and 38 plots downstream from the two dams both before and in the first summer following dam removal (2013). Pictures of a 100m² vegetation plot were taken in the same position before and after dam removal. The photos illustrate that the middle and lower reaches experienced high levels of visual fine sediment deposition, and the upper reach remained visually similar to previous years. This photographic data will provide a visual baseline for assessing the long term effects of dam removal.
Fixing Things: The politics and techniques of cell phone repair
Grace Cooper, Anthropology

Each of the estimated 6 billion cell phones in circulation today unites a global network of people, places, and things. Examining how cell phone users negotiate the moment of breakdown is key to understanding the ways cell phones mediate user existence within that network. As part of a larger ethnography of cell phone repair sponsored by George Washington University and the National Museum of Natural History, Dr. Joshua A. Bell and I created a chaîne opératoire of cell phone repair in the summer of 2013. The chaîne opératoire or operational sequence documents key information about the transformation of raw material into culturally meaningful objects and the maintenance of those objects; in the process, it captures information about the society in which this transformation occurs. To create this operational sequence we observed and documented cell phone repair in two cell phone repair shops in Washington, D.C. We then performed discourse analysis of the audio/video files, notes and photos collected during participant observations. Our results contribute to the broader understanding of the role that cell phones play in society in the 21st century, and how the details of cell phone design, manufacture, and repair affect us.

ACL Reconstruction of 22-year-old Male Collegiate Football Player
Joe Cordes, Alii Chapin, Kendell Erickson, Asiya Akhgar
Jeffrey Kawaguchi, Physical Education, Health and Recreation

The anterior cruciate ligament is one of the most injured structures in the knee (Ozenci, 2007). Ozenci also lists the medial collateral ligament, lateral and medial meniscus, and patella as commonly injured structures. These structures are often injured with a torsion or twisting motion applied to the knee. This case study will discuss the evaluation, treatment and rehabilitation of a 22-year-old football and track athlete who tore his anterior cruciate and medial collateral ligaments, and medial and lateral meniscus, and dislocated his patella. The athlete injured his knee during practice a week before the season opening football game. The injury was a non-contact injury that occurred from a twisting of the knee while the athlete was moving forward and the trunk was rotated.

Case Study of a 21-year-old Collegiate Football Player with Rhabdomyolysis and Acute Renal Injury with Other Complications
Marissa Cox, Stephen Schrater, Shawna San Nicolas
Jeffrey Kawaguchi, Physical Education, Health and Recreation

Rhabdomyolysis is a potentially life-threatening condition, resulting from the breakdown of skeletal muscle fibers that leak their contents into the circulation. While the prevalence and incidence is unknown, the National Hospital Discharge Survey reports 26,000 cases annually. This condition can have a number of causes such as trauma, toxic ingestion, or exertion. A complication of rhabdomyolysis is acute renal injury, which was also present in this case. The athlete presented in this study is a 21-year-old male Division I collegiate football player. He was admitted to the hospital and treated for rhabdo and acute renal injury after participating in football practice in extreme heat. After the initial episode he had several other complications that we believe to be connected including syncope, nausea, and chest pains. After several tests and evaluation by a cardiologist, the athlete was cleared to continue with exercise with no conclusion as to the cause of the other episodes. This study is being done to devise a possible differential diagnosis of the subsequent episodes.

Origins of Hangman Creek Deformation at Campion Park
Robin Daley, Derry Callender, Camie Bearup
Chad Pritchard, Geology

Along Hangman (Latah) Creek, just south of Spokane, WA is a thrust fault with a fault bend fold exposed by a cut bank. The recently discovered Spokane fault, along with the possible Latah fault, has elevated awareness of seismic hazards for
the densely populated area of Spokane. This investigation includes interpretation of the fault along Hangman Creek and its possible relationship to the Spokane and Latah fault systems versus the possibility of a mass wasting origin. Photographs of the exposed fault and LiDAR were used in the calculations for possible strike and dip of the fault. Data from these calculations are comparable to the Spokane fault. Rapid stream erosion, as proposed by Meyer in 2009, has also been considered to be the cause of this deformation. The subject deformation in Hangman Creek was possibly produced by rapid stream erosion or may be due to a splay off the proposed Latah fault, potentially similar to the newly discovered Spokane fault.

Carlos Santana: Using music to unite communities
Courtney Darrow
Martín Meráz García, Chicano Education

Carlos Santana, a musician born in Mexico and raised in America, has spent his entire career creating music for the masses. In 1966, he formed the Santana Blues Band whom, over the next several decades, would become internationally known for their music and charitable nature. Using his fame to promote the good in the world, Santana has become an international icon for the Latino community. Using scholarly and newspaper sources like, Carlos Santana by L.C. Slavicek and the article Santana from The Latino American Experience, I will explore in more detail Santana’s influence on the Chicano community in America. I analyze the way Santana has used his music and fame to raise funds for charities helping people who have been affected by poverty, natural disasters, and other problems. I examine the ways in which Santana has been able to raise awareness of the issues that many Chicano’s face in American society, such immigration. Finally, I delve further into how Santana, through his music, has helped create a better acceptance of the Chicano culture in today’s mainstream American culture.

Helping Children with Terminal Diagnoses Find Hope
Marina Davis
Sue Wright, Children's Studies
Trevor Liebing, Children's Studies

Using a Child Life framework, this literature review examines how children cope with receiving a terminal diagnosis and what can be done to assist them with the coping process. Children’s ability to cope with death is affected by their stage of development. Research has suggested that families go through five stages of grief as the child’s illness progresses and they eventually die. In this process, the diagnosed child’s voice may be minimized within the family system. The child may need support from counselors, including a Child Life Specialist, to help him or her cope with the grief. The literature has suggested that there is promise in implementing Palliative Care for children. Palliative care for children has improved the quality of life, including improvements in their physical, emotional, and social needs for the child. The Child Life Specialist can encourage the child to talk about their feelings and wishes. Some of the techniques that have been used are: patient narratives, groups, music, and artwork. As death approaches, hospice services may meet the needs of the child.

Honeybee Metabolic Rate Studies
Martin Davis
Justin Bastow, Biology

The multibillion dollar value that honeybees (Apis mellifera) contribute to agriculture could be optimized through the study of cellular respiration as a potential platform for the synthesis of a honeybee health plan. I measured the metabolic rate of honeybees recovering from cold comma inactivity with honeybees that were allowed to ingest hive honey during recovery of inactivity. This simulates the early morning metabolic rate of change for honeybees prior to hive and foraging activities. Metabolic rates were measured over a five week summer period during maximum seasonal nectar flow using 49 individuals in 12 separate laboratory measurements. Mean honeybee metabolic rate without prior feeding of hive honey measured 7.77µO₂/100mg while honeybees fed hive honey averaged 60.27µ O₂/100mg. This study provides the data to
support an increase in the metabolic rate of honeybees occurs from the ingestion of hive honey to provide energy necessary to begin daily hive and foraging activities and promotes further investigations of honeybee health to benefit agriculture.

**Assessment of Maladaptive SNP Frequency in Pre-Recovery *Enhydra lutris* (Sea Otter)**

**Bailey Dershem, Samuel Gibson, Kyle Miller**

*Randall James, Biology*

Sea Otters are aquatic, marine mammals that are indigenous to the coasts of the northern Pacific Ocean. Pre-fur trade, otter populations globally thrived on abundant food sources of small salmon, crab, oyster, and auxiliary crustaceans. Starting around the 1800s Sea Otters became prized for their fine pelts, which are the densest in the animal kingdom with 250,000 to one million hairs per square inch (Defenders of Wildlife; 2013). Consequently, otter populations spiraled into concentrated bottlenecks endangering the entire species while losing 99% of their original numbers (Larson, et al, 2012). These bottlenecks limited genetic diversity which in turn lead to the possible development of metabolic disorders. In our study we are using DNA extraction, PCR, and sequencing to assess maladaptive SNPs in three regions (ATP6, COX1, & Cytochrome B) of six different sea otter bones (collected between 1950 and 1960). We are also analyzing a fourth region (D-loop) from which we are assessing genetic diversity.

**Invisible to Many, Crucial for All: Chicanos in Veterinary Medicine**

**Marrisa Dormaier**

*Martín Meráz García, Chicano Education*

Diversity in any health field is crucial to all parties involved, reviewing statistics in veterinary medicine specifically, it can be seen that a huge deficit occurs. Currently the percentage of Chicanos represented in veterinary medicine is greatly less than the population currently residing in the U.S. Often, people feel more comfortable taking their animals to someone of the same race, partially due to language barriers. Using data from various interviews of veterinarians, census bureau, and veterinary medicine college statistics, this paper will discuss what this deficit means and how crucial it is to raise the number of minorities, especially Chicanos in this field. Also addressed in this paper is location and cost of attendance. Funding eight years of college, likely with four years being out of state is financially strapping. Utilizing information provided by the Association of American Veterinary Medical Colleges and other resources this paper will discuss the variation of cost among schools and how that affects Chicana/o students attending.

**20-year-old Men's Tennis Athlete with Medial Patellofemoral Ligament Reconstruction**

**Pamela Earl, Virginia Roth, Melissa Cochran, Kyle Dodson**

*Jeff Kawaguchi, Physical Education, Health and Recreation*

Medial patellofemoral ligament (MPFL) reconstruction has become a common surgery for athletes with reoccurring patella dislocations or instability within the knee (Raghuveer & Mishra, 2012). The MPFL is the main restraint from lateral patella dislocations and attempts to keep the patella in the normal tracking pattern during motion (Kita, Horibe, & et.al, 2010). Patellar dislocations only account for 3% of knee injuries and typically appear in young, active patients (Chun-Hao, Chin-Jung, Chih-Hung, & Horng-Chaung, 2012) but it is still common for patients to experience a second dislocation after sustaining one previously. This case study will examine a male tennis player’s previous patellar dislocations and there connection to the mechanism of injury leading to the MPFL reconstruction. This study will discuss the surgical technique performed and why it was chosen for this athlete in particular. Lastly, this study will provide the process of returning the athlete back to playing tennis.
Intervention Options for Type 1 Diabetes: FLAIR analysis of a single subject design
Jessica Elder
Amanda Reedy, Social Work

Existing literature supports the idea that keeping blood sugars within a target range is an essential part of healthy living. The purpose of this research is to identify an effective intervention that will increase the number of target readings per day for a Type-1 Diabetic (T1D), adult female. This study focuses on the use of a Continuous Glucose Monitor (CGM) to increase the amount of time sugar levels remain within the target range. Prior studies indicate that patients who wear the CGM sensor have better control of their levels, compared to those who rely on fingertip samples alone. Utilizing an integrative AB design, the target behavior and measurement tools were defined according to single-subject guidelines. Data was collected during 15 day baseline/intervention phases, and a figure was created to visually analyze outcomes. After inspection, results from the study point to a significant change in averages across phases. Therefore, this research supports the idea that the use of a CGM can be an effective approach to increase target sugar readings for an adult female with T1D.

Predicting Recidivism Rates of Domestic Violence Victims using Data Mining Techniques
Riley Englin
Dan Li, Computer Science

Domestic violence is the most common cause of non-fatal injury to women in the United States. If undetected or left unaddressed, the abuse can result in serious injury or fatality. Due to the nature of the crime, domestic violence is hard to detect and even more difficult to predict. Recently police have taken steps to better classify domestic violence cases, as well as medical facilities have taken steps to better diagnose domestic violence for patients in medical settings. The problem is there is nominal research into predicting an attack before it happens. Specifically, once a person has fallen victim to domestic violence, there is no system in place to predict recidivism for the attacker or the victim. The objectives of this thesis are 1) develop a learning model for recidivism using a victim’s readily available medical records and data mining classification techniques 2) use that model to identify warning signs within data sets, or medical records, which would then predict victim's recidivism rates.

Critical Thinking and Writing Skills in Service-Learning Projects
Elizabeth Fall
Teena Carnegie, English - Technical Communication

A 2000 study conducted, involving 22,236 college students, found that service-learning projects improved their writing and critical thinking skills (Austin A., “How Service-Learning Affects Students”). Critical thinking is defined by the Critical Thinking Community as, “the intellectually disciplined process of actively and skillfully conceptualizing[and]applying information (“Defining Critical Thinking”).” In the Technical Communication program, students participate in service-learning projects. For my first Technical Communication class, I wrote a help guide for the EWU library’s RefWorks feature, a citation and research tool. I learned how to think critically using the main principles of Technical Communication to break down a process into easily readable, manageable steps. For my Symposium presentation, I will design my poster on the critical thinking and writing components of service learning and how service learning in the Technical Communication program has helped me improve my critical thinking and writing skills.

Improving Android Boot Time
Reid Fortier
Stu Steiner, Computer Science

Android devices are becoming extremely popular in the current market, yet the extended boot time of the average Android device prevents its use in several fields, such as real time embedded systems, as well as being a frustration for users.
There has been previous work in speeding up the process, the most success of which used an image of the running system processes taken at shutdown in order to speed up the boot. This, however, has been limited by the read speed of the SD card that was used to store that image. Other storage mediums have significantly better read speeds, which is the key in order to decrease the time it would take to read the image from the device.

A 19-year-old Female Collegiate Soccer Player with a Non-Displaced Spiral Fracture of the Right Fourth Metacarpal
Farrah French, Leslie Martin, Kyle Wiley, Dallas Chally
Jeffrey Kawaguchi, Physical Education, Health and Recreation

Metacarpal fractures are very common as they account for 42% of all fractures to the hand (Feehan 2006). Metacarpal spiral fractures however are fairly rare as only 8.9% of metacarpal fractures are spiral fractures (Ali, et al. 2007. This case study will examine a 19 year old female soccer goal keeper who sustained a non-displaced spiral fracture of the fourth metacarpal. The purpose of this study is to discuss the pertinent anatomy of the hand, the mechanism of injury of a female soccer player who sustained non-displaced spiral fracture of the fourth metacarpal, the treatment initiated, the subsequent rehabilitation techniques used, and the current status of the patient. The method for obtaining the data will be a review of existing medical records and reviewing current research.

How Old We Are & How Old We Feel
Trevor Fry, Collin Keating, Diana McSwain, Patrice Frazier, Christin Quinn, Andrea Zimmerman
Jonathan Anderson, Psychology

Many researchers assess differences in age as a distinct independent variable for a wide range of empirical analyses. However, subjective age (how old people feel) is a construct that has been relatively neglected in the literature. The purpose of the current study was to assess the relationship between chronological age and subjective age, as well as subjective age differences between genders. As part of a larger study, 95 participants completed the Subjective Age Questionnaire (Montepare, Rierdan, Koff, & Stubbs, 1989) including 5 items on a 7-point Likert scale. Reported subjective age was subtracted by chronological age (age discrepancy) for comparison between genders. A significant negative correlation emerged, such that as chronological age increased, subjective age scores subsequently decreased. A comparison of mean age discrepancy scores between genders revealed a difference that was marginally significant, with males reporting a subjective age slightly younger than their actual age, and females reporting subjective age slightly older than their actual age.

Learning Approach, Motivations to Learn, and Academic Entitlement in College Students
Trevor Fry, Adrian Kunemond
Jonathan Anderson, Psychology

Academic Entitlement (AE) is a growing issue, as Geenberg and colleagues (2008) reported that roughly one third of college students expect to receive a B grade or higher for simply attending class and completing required reading. The purpose of the present study was to identify relationships between students' attitudes of AE and their approach to learning, level of academic engagement, and motivations to learn. We used the Academic Entitlement Scale to measure participant's self-reported sense of AE. The Learning Approach Inventory assessed the manner in which students approach their education and the Schoolwork Engagement Inventory evaluated how students go about their studies. The Motivated Strategies for Learning Questionnaire (MSLQ) was administered to assess students’ academic drive. Our correlational analysis suggests that students who exhibit greater AE attitudes are less engaged in their studies, have lower motivation to learn while demonstrating higher levels of test anxiety, and are more likely to take a surface approach to learning, rather than a deep approach.
College Basketball's Impact on Washington State Legislative Productivity
Joni Gall
*Kelley Cullen, Economics
Kevin Pirch, Government*

Over the last four decades, Washington State’s major college basketball programs experienced cycles of success and disappointment. With increasing attention to athletics, there is a curiosity of whether athletic performance influences local policymakers. In Regulators and Redskins, Coffey, McLaughlin and Tollison (2009) study the effects of the Redskins’ win/loss percentage on federal regulatory activity. They find a winning football team is associated with more regulatory output or logrolling from the local government, but there is no correlation to Congressional activity due to home team loyalties. Unlike D.C., Washington State is not in session year-round, where sessions only last sixty to 105 days. These sessions happen to overlap the college basketball season, providing an opportunity to measure a specific potential relationship with the local college teams: WSU, UW and Gonzaga. An econometric estimation of three OLS time-series models helps in determining a significantly explanatory relationship between legislative/bureaucratic productivity and the performance of these teams.

Geotechnical Engineering: Optimum moisture content for compaction of *in situ* soil at a residential construction site on Five Mile Prairie, WA.
*Natasha Garland Clark, Carly Sorensen, Camie Bearup*
*R. Orndorff, Geology*

The residential construction site is located at 9117 Scarlet Sky Drive on the southwest margin of Five Mile Prairie, WA. The footprint of the proposed structure overlaps two soils. Near the road is fill material brought in to form the extended roadbed. Further from the access road is the extant soil that formed in place on the prairie. This site is approximately 2,400 feet in elevation, atop basalt. Over time loess and the Glacial Lake Missoula floods shaped the landscape. Grassy, small rolling hills cover the in-situ soil. There is a natural drainage basin below the site that features basalt boulders rimming the edge as a result of many years’ past mass wasting. This study presents results for moisture content and compaction of in-situ soil according to ASTM Standard D698. Compaction prior to construction increases unit weight and shear strength for soil, hence increasing resistance to settling and structural damage.

Faulting and Stress Regimes in Compressed Sediment Layers
*Ashleigh Gertsch, Laura Gwin, Nicole Smith*
*Chad Pritchard, Geology*

The purpose of this experiment is to observe and analyze the pressure exerted on a series of sediment layers with increasing net shortening. A clear, glass box was layered with sediments, which had varying colors and grain sizes, in six 1.5-2.0 centimeter thick layers. Strain ellipsoids were generated at three points along the edge of the sandbox, corresponding with three pressure sensors. The force sensors were located at 10.0, 29.2 and 45.6 centimeters from the compressing wall. When we began to horizontally compress the sediment in the model, we observed three successive low-angle faults develop. Each of these faults had decreasing angles as they got farther away from the compressional source. A pattern of imbricated faults is a common feature in compressional regimes with some sort of detachment from its base (DelCastello 2008. The results we gathered are very typical of orogenic wedges at convergent plate boundaries and compressional regimes.
19-year-old Football Defensive Lineman with Hill-Sach’s Lesion and Rotator Cuff Clean-Up
Alexis Gholston, Abigail Waldo, Andrew Downing, Miranda Pratt
Garth Babcock, Physical Education, Health and Recreation

Hill-Sach’s Lesions are commonly attained when someone dislocates their humerus from the glenohumeral joint, however just because someone dislocates their shoulder this does not necessarily mean that a Hill-Sach’s lesion is going to occur. Typically, a Hill-Sach’s Lesion can occur 31-52% of the time following a dislocation. In this case study the subject did not have a shoulder dislocation associated with his Hill Sach’s Lesion, but rather showed signs of a previous dislocation. The purpose of this study is to describe the mechanism of injury, the injury itself, the rehabilitation process, and the end result after rehabilitation. The study is focused on a 19-year-old male football player who received a Hill-Sach’s lesion during a football game early in the 2013 season. He then underwent surgery to repair the lesion as well as underwent debris cleanup and body excision. Currently the subject is in the rehabilitation process post-surgery with the goal of returning to play when the team begins spring ball in April.

A Slow Mutation Rate May Produce Low Genetic Variation in the Sigma Rhabdovirus
Jennifer Graham
Luis Matos, Biology

The dogma that RNA viruses exhibit high mutation rates is long established. However, genome sequencing of the sigma rhabdovirus infecting Drosophila melanogaster suggests that this virus has a low mutation rate. Here we used the D. melanogaster/sigma virus system to determine whether this rhabdovirus has few mutations or produces many mutations that are eliminated when only a strict viral genotype is bottlenecked into the fly's eggs to produce the next generation. We tested the hypothesis that sigma has a low mutation rate and a bottleneck does not exist. Females of increasing age (5, 10 and 20 days old) and their respective 12 hour old eggs were collected and ~1000bp of the virion coat protein were sequenced. The RNA sequences of virus from the egg/fly pairs, regardless of female age, were nearly identical. This supports our hypothesis and suggests that, unlike many other RNA viruses, the sigma rhabdovirus has a low mutation rate.

Single Cylinder Engine Dynamometer
Tyler Grimsley
Jason Durfee, Engineering and Design
Kyle Larsen, Engineering and Design

A dynamometer is a machine that is used to measure and record the output of different types of motors or engines by applying a load to the engine and recording the amount of torque produced at that load. The EWU Engineering and Design department purchased this single cylinder engine test stand and dynamometer in order to be used as lab equipment for classes such as Thermodynamics, Heat Transfer, and Fluid Mechanics. I took this piece of equipment from its original, inoperable state and turned it into a functioning piece of lab equipment that can be used as it was originally intended.

SolidWorks CFD
Robert Gerlick, Engineering and Design
Martin Weiser, Engineering and Design

We are a group of Mechanical Engineering students working with SolidWorks Computational Fluid Dynamic (CFD) software. Coffman Engineers had designed an HVAC system for a cafeteria building and needed to know if their design will perform to expectations before presenting it to their client. Coffman Engineers assigned us the task of analyzing the airflow behavior in that cafeteria. We modeled the cafeteria in SolidWorks and used the flow simulation tool to analyze the temperature and velocity distribution throughout the cafeteria as the temperature was raised from 60 – 70°F. Our results consisted of finding the temperature and velocity distribution during this transition. We found the max temperature
gradient to be 4°F, and the maximum velocity of the occupied space to be less than 20 feet/minute. Our results confirmed that Coffman Engineers design will perform expectations.

**Seasonal Distribution and Habitat Use of Elk in Multiple-Use Habitat of North-Central Idaho**
**Calla Hagle**
*Margaret O'Connell, Biology*

Habitat loss and fragmentation, primary drivers of the current loss of biological diversity, compound effects on migratory populations that depend upon different seasonal habitats. Many elk populations migrate between high-elevation summer ranges and lower-elevation winter ranges. The length of time elk spend in summer versus winter ranges and whether or not they migrate depends on many factors. The goals of this project are to 1) compare the seasonal distribution and habitat use by elk for three populations in north central Idaho, 2) examine if seasonal distributions vary in response to climatic and vegetative variables, and anthropogenic factors. In January 2014, 20 cow elk from three populations were fitted with GPS radio collars. To compare the seasonal movements of the three populations, locations and core use ranges will be mapped. I will characterize the elk habitat use using GIS data including vegetation type, percent cover, elevation, snow depth in the winter, green-up and senescence of forage in the spring and summer, and anthropogenic features such as timber harvest and determine the amount of time elk spend in each feature class. Understanding how these factors impact elk will help inform management of large migratory species facing increasing habitat loss and fragmentation.

**Petrographic and Geochemical Analysis of the Camas Land Sill, Chelan County, Washington.**
**Amber Haston**
*Jennifer Thomson, Geology*

The Eocene Camas Land sill of Chelan County, Washington was studied to demonstrate whether cooling was accompanied by fractional crystallization. This coarse, hypabyssal, diabasic sill, variously exposed in a northwest trending syncline, intruded the clastic sedimentary rocks of the Swauk formation (Eocene). The sill is up to 500 feet thick in the northwest. Several samples were collected from a vertical quarry face for both petrographic and geochemical (XRF and ICP-MS) comparison. Modal mineralogy was estimated (using JMicroVision v.1.2.7) and shows that the rocks grade from fine grained, mafic at the base to coarser grained and felsic towards the top. Whole rock geochemical analyses from this study and others, as plotted on major element Harker variation diagrams, show linear trends suggestive of fractional crystallization. The major, trace and REE element compositions of the sill rocks have been compared to Teanaway formation basalts and basalt of the Columbia River Basalt province.

**Structural Analysis and CRBG Stratigraphy of the Palouse Falls Area, Eastern Washington**
**Shyla Hatch, Alexandria Faulds**
*Chad Pritchard, Geology*

Fractures in the Palouse Falls area have influenced erosion from the Missoula Floods, captured the Palouse River, and helped guide the recessional cataract that formed Palouse Falls. Origin of the fractures has been ascribed to folding and crustal lengthening, though conjugate angles are present in map view, suggesting lateral motion. If structures in the underlying basement resulted in fractures that penetrate through the Columbia River Basalt Group (CRBG), then the fractures may be a dominant influence on groundwater hydrology in an arid area. This study includes six stratigraphic controlled samples used for geochemical discrimination of the CRBG present in the Palouse Falls area. Whole rock analyses correspond to the presence of the Grande Ronde, and Wanapum Formations in the project area. By measuring fractures from aerial photos and using fracture analysis we evaluate the hypotheses that fractures originated from 1)
folding, 2) normal faults, or 3) transpressional structures. The orientation of the fractures correlates with other fracture zones within the State of Washington.

**Analysis of the Available Research on the Spokane Fault**

Jacquelyn Hayes, Kyle Belock  
Chad Pritchard, Geology

For five months in 2001, the city of Spokane, Washington was subjected to over 100 small earthquakes. Prior to 2001 there was no known fault running through the city, as such, little equipment was deployed in the region to detect earthquakes. The swarm of earthquakes began in May and by the end of June, the Pacific Northwest Seismic Network had set up temporary seismic stations. The calculated moment tensor indicates normal fault motion. Satellite imagery was also analyzed in order to determine a possible location for the previously unknown fault, but concluded that motion was along a reverse fault, which has some preliminary verification from a seismic reflection line run in 2011 by the USGS. The current approximation for the fault has an attitude of 030, 30° NW with a surface trace at least 5 km long (Wicks et al., 2013). What research has been completed for the Spokane fault does not always agree, or show correlation. Further research is needed in order to assess the size and behavior of the fault so that associated hazards may be mitigated or at the very least, better understood.

**Image Analysis in Support of a Machine-Learning Helicopter Flight Dynamics Model**

Matt Hempleman  
*Dan Tappan, Computer Science*

A helicopter in flight is an inherently unstable system and current computational simulations, based on numerous complex mathematical states, are not convincingly realistic and have limited value as tools for pilot instruction. In contrast, a simulation modeled around machine learning and the minimum available data of which a human pilot is aware, has the potential to be an effective tool. Building such a model involves the acquisition of real world helicopter flight data from an experienced pilot repeatedly performing a series of basic flight maneuvers, without interference with the pilot’s ability to safely operate the helicopter. To that end, this work proposes to build an image analysis system that will mine and process raw digital flight data, recorded using an array of cameras positioned around the helicopter cockpit, into a form that accurately represents the state of the instruments and controls at any given time during flight. The output data will be used to build a machine-learning based helicopter flight dynamics model.

**Modular Hiking Backpack**

Dalton Herron, Michael Everson, Brandon Duckett, Paolo Marasigan  
*Martin Weiser, Engineering and Design*  
*Awlad Hossain, Engineering and Design*

Current backpack designs for hiking and survival purposes can be bulky and cumbersome when fully loaded with gear. A fully loaded pack can weigh, on average, approximately 45 pounds with volume ranging from 3,000-4,000 cubic inches. In addition, several backpacks lack functionality beyond being able to store gear. The objective of this project has been to design a modular hiking backpack for either male or female users that will not only allow for equipment storage, but also incorporate a two-person tent. The pack will contain a deployable flotation device for use as a sit-on-top water craft. In addition to these features, the pack is also designed to be watertight, compact, and lightweight all while being comfortable and user friendly. These features were actually determined by multiple focus groups and current market competition. The pack has been designed using a variety of engineering related software, such as ANSYS and SolidWorks. All of our research has been compiled into a final design for a working prototype.
PCR Amplification of the Green Fluorescence Protein Gene for Sub-Cloning
Royce Hogue
Prakash Bhuta, Biology

We developed a plasmid cloning by PCR technique for the green fluorescence protein gene. PCR was used to amplify the GFP gene on the pGLO plasmid with custom PCR primers. The primer design included three sequences: 1) a leader sequence, 2) a restriction endonuclease recognition sequence for the cloning site, and 3) a complimentary sequence to the GFP gene. The GFP gene amplicon was ligated to pre-cut pUC18. The recombinant pUC18 was transformed using chemically competent *E. coli* DH5a. A blue/white screening method was used to identify the recombinant clones.

Analysis of the Mitochondrial D-loop Diversity in Miner Lakes, Montana Populations of Thymallus Arcticus
Jessica Huffman
Randall James, Biology

Arctic Grayling (*Thymallus Arcticus*) have been approaching endangerment because of their lack of genetic diversity (Rens et al. 2010) The populations of grayling began to decrease come the 1980’s; although, they were one of the most prominent fish in the northern United States come the end of the turn of the 19th century. Since Arctic Grayling are being threatened by their own lack of diversity, it has been difficult for grayling to get on the endangered species list. The petition for their enlistment began in 1991, but the population numbers were not decreasing dramatically (Haugen 2000). Their lack of genetic diversity would lead to a population with little adaptively. In order to gain knowledge about the lack of diversity, samples were taken from Miner Lakes, Montana and amplified on. Single nucleotide polymorphisms (SNP), which are changes of one nucleotide within the genome, were analyzed through four different loci on the mitochondrial genome (Genetic Home Reference 2014; Shed’ko 2002), in order to truly see the lack of diversity of North American Grayling. The analysis of SNP’s within a population can show diversity, for a genetically diverse species has a wide variety and large number of polymorphisms while a species at a risk of endangerment does not (Weiss et al. 2006).

SAIL Evaluation for Fall Prevention in Senior Exercise
Max Jarvis
Wendy Repovich, Physical Education, Health and Recreation

Each year, falls cause 3,000 seniors in Spokane County to require emergency visits to a hospital, with more than 325 of these seniors becoming hospitalized indefinitely. Research suggests that physical activity with emphasis placed on improving balance in this population can reduce the risk of falling. Various programs are currently offered in the greater Spokane region through the YMCA and IEL geared towards older adults, but it is uncertain whether these programs meet standards for determining factors for physical health. College students were recruited to analyze various exercise-focused classes using a combination of the SOFIT and the SAIL evaluation tools. Pairs of students evaluated a specific course to increase inter-rater reliability. The findings of each student were compiled as percentages of each physical health category that were deemed to have been covered during the class, and then reviewed to determine trends in which class types met standards set for markers of physical health. All classes evaluated covered at least 80% of suggested material.

Possible Core Complex South of the Priest River Complex in Bonnie Lake, Eastern Washington
Dallin Jensen
Chad Pritchard, Geology

An island of schistose Precambrian Belt Supergroup pelitic basement rock is exposed at Bonnie Lake, Spokane County, Washington. The rocks composing this island dip west and are folded into inclined to recumbent, gentle to isoclinal folds.
plunging approximately 30 degrees to the north. Oriented samples were collected and a petrographic analysis was able to identify the confining assemblage of Cordierite-Biotite-Chlorite-Quartz-Sillimanite which indicates P/T conditions of 600-650°C, and 2-4 kilobars of pressure during the metamorphism of this body. These values are comparable to conditions estimated for the Newport Fault Footwall near the Spokane Dome. Therefore, we test the hypotheses that this island represents a southern continuation of a core complex, similar to the Priest River Complex, possibly offset to the west by a continuation of the Lewis and Clarke fault, which currently represents the boundary of the known extent of this body. Future research will investigate the possible presence of a metamorphic core complex located in Bonnie Lake.

**Paleo-Indian Thermal Feature Identification**

**Jeffrey Johnson, Adam Calkins**

*Jerry Galm, Anthropology*

While the Paleoindian archaeological record in North America includes a number of perplexing information gaps, perhaps none is greater than the nearly universal absence of definitive evidence for hearths and associated hearth activities. This paper will not only give an analysis of hearths, but provide techniques to better identify these features with in a PaleoIndian site. The site sample employed in this comparative analysis ranges from early to Late-Paleoindian manifestations and includes both specialized and non-specialized site records. The existence of hearths on sites within the Paleoindian period (c. 15,000-10,000 years ago) is presumed on the basis of survival requirements in the diverse, temperate environments of North America present during this timeframe. By using a comparative analysis of the techniques used on multiple Paleo-Indian sites within North America, data can be compiled to demonstrate the need for archaeologists to adjust their analysis of Paleo-Indian hearths/fire features.

**Sit and Be Fit: Evaluating the effect on senior fitness**

**Kelly Joiner, Lindsey Kempe, Stevie Juhnke, April Grandpre, Taylor Swoverland, Aaron Perry, Anastacia Lee, Sean Everett**

*Wendy Repovich, Physical Education, Health and Recreation*

Sit and Be Fit is said to be the best in promoting healthy aging. The purpose of this study was to assess the physiological benefits of Sit and Be Fit in a senior population when compared to ADLs. Thirty-one subjects (26 women, five men) volunteered for this 3-month study. Subjects chose whether they were assigned to the Sit and Be Fit group (E) or the normal exercise group (C). Baseline assessments were done for each subject to determine balance, endurance, and strength levels. Those in group E were instructed to follow Sit and Be Fit exercises while those in group C were instructed to continue with their normal ADLs. Self-recorded exercise logs were kept during the study for each subject and reminder calls ensured adherence. Results for those at risk were recorded in means for each test (chair stand: E=7.5, C=9; arm curl: E=10, C=9; step test: E=57, C=42.5; up-and-go: E=11.8, C=9.7; balance: ER=6.0, EL=6.6, CR=10.2, CL=8.6). The number of at-risk subjects in the study supports the idea that improvements can be made in all areas of physical fitness using Sit and Be Fit.

**Service Learning: The importance of professional relationships**

**Laura Jones, Nicholas Binford**

*Teena Carnegie, English - Technical Communication*

Service learning stresses the importance of meaningful community service combined with classroom instruction, in order to improve student learning, instill a sense of civic responsibility, and strengthen community relations. This is all a part of Eastern Washington University’s strategic plan, which emphasizes student and faculty participation to increase EWU’s involvement in the community. Service learning projects give students experience working directly with a client and establishing long-term professional relationships. Whether or not these connections are positive, the experience is important to students because it influences their approach to future professional associations. This poster shows how service learning was effective in building a long-term relationship with a client. For our project, we produced a poster to assist the City of Airway Heights in passing
an initiative for road repairs. This poster became a key component in the success of the initiative. This experience resulted in more opportunities for our members to work with Airway Heights in the future.

Testing the Efficiency of UV Sterilization by Searching for and Identifying UV Resistant Bacteria
Sabrina Judson, Zachary Healey
Randall James, Biology

Ultra-violet sterilization is used in many industries, most of which rely on sterile conditions for safe product production or safety reasons. Microbiologists frequently test spacecraft clean rooms for the presence of bacteria. From these surveys, a new species of bacteria, *Tersicoccus phoenicis*, was discovered and hypothesized to be extremely resistant sterilization methods including UV radiation (NASA). Most laboratories depend on UV sterilization, so like surveying for bacteria, searching for UV resistant bacteria on ‘sterilized’ surfaces were used to test the overall effectiveness of this disinfecting method. These bacteria were then sequenced using 16S rRNA to identify what type of bacteria typically survived in these conditions and if they were common or unique. To determine the most efficient exposure time, a surface in a laboratory hood was swabbed. The bacteria were cultured at different intervals of before, during, and after UV sterilization and the surviving colonies were tallied and compared.

The Impact of Scheduling Improvements for Hadoop Computer Clusters.
Steven Kakoczky
Stuart Steiner, Computer Science

The MapReduce programming model for distributed computing is an extremely powerful tool to handle the processing of extremely large data sets by using multiple computers networked together. One of the most prevalent frameworks using this model is Apache Hadoop, which was made to closely resemble the implementation from Google. Because of this, there has been quite a lot of research into improving Hadoop and one area is the way it schedules and distributes various computing jobs throughout the networked computers. Many scheduling algorithms have been written that show improvement from the default method of scheduling used by Hadoop, however many of these algorithms claim to improve it in the same way. This work observes the overall improvements to execution speed for several proposed scheduling algorithms to gauge how significant these improvements are and how much they differ. It is also important to see how different types of data processing affect the execution time and whether or not there is an algorithm that handles certain types of data processing better than others.

LANAP: Laser-Assisted New Attachment Procedure
Jennifer Keller, Esra Benlitifah, Danielle Jones, Jacquelyn Rotchford, Danielle Jones
Janet Nord, Dental Hygiene

According to the CDC, 47.2% of Americans have some form of periodontitis. Clinicians and patients alike desire less invasive therapeutic options to treat this disease. Using the Laser-Assisted New Attachment Procedure (LANAP), negative side effects such as pain, recession, dentinal hypersensitivity, and postoperative discomfort can be minimized. LANAP is a surgical laser procedure designed for the treatment of periodontitis through regeneration rather than resection. The protocol deals with inflammation, the infectious process, occlusion, tooth mobility, and an osseous component. Our purpose was to perform a review of the literature and educate others to the many benefits of this alternative periodontal treatment.
Survey of *Ericoid Mycorrhizae* in the Pacific Northwest
Michelle Keller
*Suzanne Schwab, Biology*

Nearly all land plants form symbiotic relationships with mycorrhizal fungi; these relationships improve nutrient uptake and overall plant health. Endomycorrhizal fungi grow structures within plant root cells and extend hyphae to surrounding soils. Ericoid mycorrhizae (ERM) are a group of highly specialized fungi that grow in symbiosis with ericaceous plants such as rhododendron, cranberry, blueberry, and wild huckleberry. Huckleberries are members of Vaccinium and, despite requiring labor-intensive wild collection, they have substantial market value. Demand for huckleberries is great, yet they remain non domesticated. Their symbiosis with ERM permits them to thrive in acidic soils high in iron and aluminum but low in essential nutrients. The ERM species associated with wild huckleberry species is mostly unknown. This work endeavors to collect, isolate, and identify ERM species with various species of huckleberry. ERM presence was confirmed, and specimens were cultured to isolate species for identification. Some of the ERM species were found at all sites, and work is ongoing.

The Effect of Music on Depression: The importance of choice
Marlena Kennedy, Trevor Fry, Joshua Bell, Andrew McCall, Cloie Cornell, Christin Quinn
*Jonathan Anderson, Psychology*

Research has shown that the iso principle, a concept where individuals select music to reflect their mood, has been useful in alleviating distress. It was hypothesized people with depression would not benefit from the iso principle due to cognitive malfunctions in areas that produce therapeutic effects. 168 participants were given a stressor and asked to self-report levels of stress. Participants were then randomly assigned into three conditions where they listened to chosen tracks, a pre-determined playlist, or no music. Participants also filled out questionnaires regarding depression symptoms and finally give a post measurement of self-reported stress. The statistics revealed self-reported stress significantly decreased in the group assigned to listening to preferred music for their mood (iso principle), but not in the other two conditions. Data revealed that symptoms of depression did not have a significant effect reported levels of stress. This suggests people do benefit from the iso principle, if they do not show symptoms of depression.

A Review of Augmentative and Assistive Technologies and Their Relation to Verbal and Social Development in Children with Autism Within a Classroom Setting
Wyatt Kittilstved
*Nick Jackson, Psychology*

The diagnosis of autism spectrum disorders in the past years has increased dramatically. This increase has prompted a growth in the variety of research of intervention methods for children with autism. Assistive and augmentative communications and assistive technologies have become largely the most popular subjects researched. When used in the classroom setting, educators have found these devices to benefit both students on the spectrum and as well as the classroom environment as a whole. Software has been designed for tablet computers and mobile devices to improve the learning experience and help children with autism spectrum disorders, as well as allow them to manage schedules and learning programs with more efficiency. In favor of these software programs, significant evidence has shown that these programs help children better socialize and acquire pro-social behaviors. I will be evaluating on educational and social benefits that AAC and AT have provided to children with ASD, taking into consideration satisfaction and success rates.
Lack of Research on the Effectiveness of Orthotic Interventions in Preventing Lower Limb Overuse Injuries
Francesca Lahoz
Nate Lawton, Physical Education, Health and Recreation

Orthotic intervention, namely, the use of insoles, is one that has a reputation of being effective in the prevention of lower limb overuse injury (LLOI), but not many studies have tested its effectiveness. The few studies that do exist contain methodological flaws, including a failure to represent the general population and a poor implementation of methodology. A review of randomized control trials (RCT) on orthotic intervention by Mattila et al. (2010)—which concluded that insoles do not prevent LLOI—and Franklyn-Miller, Wilson, Bilzon, & McCrory (2011)—which concluded that insoles resulted in a lower rate of LLOI—shows that more research needs to be done. Mattila et al. (2010) used customized foot insoles while Franklyn-Miller et al. (2011) used semi-customized foot insoles, which may explain the discrepancy in conclusions. Additionally, both RCTs were performed in military populations and do not represent the general population. More research needs to be done to examine the effectiveness of foot insoles.

Effects of Caffeine Ingestion on Anaerobic Power Performance During Repeated Upper Body Wingate Bouts
Anastacia Lee, Max Jarvis, Justin Parks, Sean Everett, Gavin McBride
Nate Lawton, Physical Education, Health and Recreation
Wendy Repovich, Physical Education, Health and Recreation

Previous studies suggest that caffeine may significantly augment lower body anaerobic power during repeated sprint bouts. The purpose was to test the effects of caffeine on upper body anaerobic power performance during repeated Upper Body Wingate Anaerobic Power Tests (UBWT). Twenty-six participants volunteered for this randomized, double blind, crossover study. During testing, participants consumed either caffeinated sports jellybeans (CJB), with a caffeine dose of 2 mg/kg of body mass (BM), or an equal volume of non-caffeinated sports jellybeans (NCJB). Following a warm-up, participants completed three 30-sec bouts of UBWT on a modified cycle ergometer. Bouts were separated by 2-min of active recovery. Drop weight resistance was set at 3.5% BM. A repeated measures analysis of variance was used to compare dependent variables, with significance set at p ≤ 0.05. There were statistically significant improvements with caffeine. The findings suggest that caffeine can significantly improve upper body anaerobic power performance during repeated bouts of high intensity anaerobic work.

Rustler’s Gulch Recreation Area Guidebook
Billy Lei, Jamie Gardipe, Danielle Roslevich
Gregg Dohrn, Urban and Regional Planning

In 2009, Pend Oreille County received the Rustler’s Gulch area from the Washington Department of Natural Resources with stipulation that the parcel be used for the public purpose of fish and wildlife habitat, open space or recreation. This Guidebook was created to aid decision-makers in their use of the Rustler’s Gulch Recreation Area. Utilizing the planning process, three alternatives use scenarios were developed that reflect the goals of the community decision makers and stakeholders.

An Assessment of Gene Flow and Genetic Diversity of Odocoileus hemionus in Washington State
Cale Lester, Hannah Lee, Makinzie Kosanke
Randall James, Biology

Mule Deer (Odocoileus hemionus) have experienced multiple bottlenecks in their populations due to environmental factors and human interaction. Bottlenecking events typically reduce the genetic diversity and increase the genetic drift of
a population, and detrimental mutations can become widespread through such events. To assess diversity and gene flow the D-Loop region, which is highly conserved, was chosen to be examined for single point mutations (SNPs). NCBI’s database of sequences was used to cross reference the data derived in lab and provide a reference point, as well as help us design the primers used in this study. Blood samples from various herds of O. Hem throughout Washington State were used in this study. Due to the homestead range behavior and migration of up to 100 miles of male mule deer, different herds were examined within Washington in order to judge gene flow and assess genetic diversity within herds.

Environmental Racism's Effect on African American and Latino Communities
Mikaila Leyva
Dorothy Zeisler-Vralsted, Government

My research follows the effects of environmental racism on African American and Latino communities within the United States. There are real world effects that follow the siting of toxic dump areas in predominantly African American and Latino communities. Both primary and secondary articles are being used to prove the effects of these toxic sites. This study also uses various reports, journals, and books which document the injustices of environmental racism. Although the research is still being conducted, I hypothesize that my findings will support my claim that toxic sites exhibit evident negative effects on their surrounding communities, which is primarily that of African Americans and Latinos. This study will educate people on a relatively unknown area of environmental justice which affects a large population of underrepresented groups within the United States.

Shear Modulus of a Laminated Material for Predicting Rocket Fin Failure Due to Flutter
Nicholas Linthicum, Andrew Nilson
Martin Weiser, Engineering and Design
Awlad Hossain, Engineering and Design

The design, construction, launching, and operation of rockets is an important topic of academic interest. One reason why a model rocket cannot reach its optimum height nor remain within its projected path is the undesirable oscillation of the fins. This phenomenon is called “fin flutter,” which progresses into a severe issue when the compliant (or flexible) materials are used for fins in rocketry projects. Therefore, the fin flutter issue may be reduced or eliminated by using materials with a higher shear modulus. During this research, we are planning to determine shear modulus of laminated materials such as plywood and fiberglass by the asymmetric four point bending test. Several tests will also be conducted along different fiber directions resulting in different numerical values for the material’s shear modulus. To validate the experiment’s results, multiple metals of known shear modulus will also be experimented in the same environment. The overall project will provide the designer with more options to use the most suitable material for rocketry projects with intended performance.

Construction of a Shake Table for Seismic Testing
Rex Lloyd, Cole Holman
Richard Orndorff, Geology
Chad Pritchard, Geology

A shake table was constructed to reproduce seismic activity at variable frequencies. This is important for testing the seismic response of local soils and sediments, as such several local faults have been identified. Furthermore, these faults may be active and a direct source for seismic activity in the region. Additional studies of local soils will assess liquefaction and slope failure potential due to seismic shaking and test the plausible seismic origin of mima mounds. To construct this table simple shop tools were used in collaboration with mechanical engineering undergraduates and has resulted in the specific manufacturing of a drive wheel and drive arm to improve function and reliability of motion in the shaking platform. A mounted AC motor was used to replace the drill used in the original construction to allow for more precise applications of force and functional variability. Lastly several adaptations to the table were made to house soil to undergo testing. The ultimate goal of the project is to quantify the way local soils react to differing seismic frequencies.
Searching for Unique Thermo-Stable Polymerases in Thermophilic Microbes  
**Jacob Mallery, Courtney Wanke, Coralynn Kinney**  
*Randall James, Biology*

In all domains of life, polymerases are responsible for DNA and RNA replication and repair (Garcia-Diaz, 2007). DNA Polymerase I, also known as Pol I, found in the bacteria, *Escherichia coli* (Lehman, 2003), was the first polymerase found and published. Thermo-Stable Polymerase discovery, like Taq (*Thermus aquaticus*) DNA Polymerase has radically increased scientists’ understanding of the living world. Due to these findings, knowledge has increased greatly, and new discoveries are being made constantly. An example of these advancements is awareness of bacteria and other life forms thriving where once believed impossible. Microbes that live in extreme environments are categorized as Extremophiles. Our group aims to isolate one specific faction of Extremophiles, known as Thermophiles (Excessive heat-seeking bacteria). Upon accomplishing this, we seek to identify which specific microbes are present by analyzing their 16s gene sequence. Eventually, we hope to discover, grow, and characterize the microbes’ polymerase genes as well.

Microsatellite nalysis of Spokane River Watershed Redband Trout  
**Mike Manor, Zachary Healey**  
*Randall James, Biology*

Redband Trout (*Oncorhynchus mykiss*), has been threatened by the changing of their natural habitat, either destruction or interference like hydroelectric plants, overconsumption, and pollution. The species has been threatened by introduction of rainbow trout as well. Through introgression and hybridization, genetic purity has been lost, and now pure Redband Trout are incredibly scarce. The lack of resources and local competition in habitats has led to introgression of Rainbow Trout and Redband Trout. Redband trout have also undergone several bottlenecks, to where genetic diversity is severely lacking. Furthermore, now Redband Trout exist in an isolated ecosystem in the Pacific watersheds. We are analyzing multiple locii using microsatellite fragments to expose species-specific markers or locii. Also, the locii are being compared to hatchery Rainbow Trout for genetic diversity and purity.

Radiation Heat Transfer Project  
**Paolo Marasigan, Jordan Sonneck, Jade Panday, Andres Tellez**  
*Kyle Larsen, Engineering and Design*

The heat transfer course, MENG 444, has an important laboratory component to strengthen the student’s understanding of material discussed in class. We are creating a laboratory experiment to illustrate the concept of heat radiation. This lab experiment consists of having similar objects at fixed temperatures positioned in a vacuum jar observed over a certain amount of time. The pump system creates a vacuum, which will reduce the air and effect of convection, and the experiment will run for different values of jar pressure. This will result in the heat loss due to the radiation becoming the primary focus and the convection of less importance. The objective of this experiment is to compare the transient rate of heat loss from the objects under user defined conditions.

Characterizing the Chronic Dopamine Recording Microelectrode  
**Eric Marr, Britt Yazel, Thomas Vanderholm, Stephanie Davis, Peter Rinne, Bracken Sorensen**  
*David Daberkow, Biology*

Dopamine (DA) is an important neurotransmitter implicated in learning, drug addiction, and Parkinson’s disease. Therefore, measuring DA is critical in investigating these processes. Fast-scan cyclic voltammetry is an indispensable tool in monitoring DA activity in the brain. Previously, glass-housed electrodes limited this technique to short-term DA monitoring (hours). Development of silica-encased electrodes advanced the technique for long-term DA monitoring (months). Silica-encased recording, bipolar stimulating, and AgCl reference electrodes were implanted in the striatum of Sprague Dawley rats. Electrically evoked DA signals were obtained during surgery and biweekly for 4 months post surgery. DA signals were subsequently modeled by kinetic analysis to determine parameters of DA release and uptake.
Preliminary data indicate amplitude of DA signals, as well as parameters describing release and uptake, decrease during the first six weeks post surgery; however, after 6 weeks DA measures remain relatively stable. These data suggest a 6 week recovery time for the chronic DA electrode.

**Implementing Sibling-Family Centered Care Programs in the Neonatal Intensive Care Unit**

Karen McDermott  
*Sue Wright, Children's Studies*

Factors that foster sibling involvement with the newborn and the early stages of attachment are an essential component of any successful sibling involvement program. Researchers saw attitudinal issues and attentiveness as playing a key role in implementing and accepting sibling unique programs that centered around families, the NICU atmosphere, and promotion of the concept of family-centered care and allowing parents, siblings, and grandparents the opportunity to be supportive together. The purpose of this study is to identify why and how sibling participation in the Neonatal Intensive Care Unit is so crucial to early attachment and bonding. This paper explores the information needs of the siblings of critically ill children and the implementation of an effective sibling-centered program. This study finds that sibling support is more a journey than a destination. Research also suggests that visitation to a neonatal ICU is not likely to be harmful for siblings and, in fact, may be beneficial to sibling's and their families. There are few programs for sibling visitation in the NICU.

**Case Study of an 18-year-old Collegiate Soccer Goalkeeper with a Cyclops Lesion**

Casie McGinness, Jennifer Ach, Reece Hayes, Chandler Batiste  
*Garth Babcock, Physical Education, Health and Recreation*

Cyclops lesions are the second most common cause of loss of extension in a knee following an Anterior Cruciate Ligament (ACL) reconstruction and are found as a complication of the surgery. Although they are the second most common reason for extension loss, they only occur in a very small amount of all ACL surgeries. Therefore, the purpose of this case study is to discuss how a Cyclops lesion occurs and its removal. The subject is an 18-year-old soccer goalkeeper who had ACL reconstruction during her senior year of high school, November 2012. The pt. received ACL reconstruction in December 2012. Following the start of her soccer season at college in August 2013, the pt. began to present with symptoms. After continued medical treatment, a Cyclops lesion was found. The pt. had the Cyclops lesion surgically removed in September 2013. This study will report on the symptoms presented, the mechanism and susceptibility for occurrence, and the prognosis for recovery and return to play following the second surgery.

**FANUC Delta Robot with Vision System**

Steve McGough, Michael Moore, Warren Miller, Alberto Sanchez  
*Robert Gerlick, Engineering and Design*  
*Donald Richter, Engineering and Design*

Robotics and automation is an important part of mechanical engineering. The use cameras to allow robots to "see" what they are working on is one of the latest advances in robotics. Recently EWU was donated a cutting edge robot with an integrated vision system. For our Senior Capstone project we are first learning how to use and program the robotic vision system then we are writing a student manual that will allow future students to learn how to use this powerful engineering tool. Along with the manual we are creating a self contained demonstration program that will be plug and play. The engineering department will be able to use this for introductions for new students and for tours.
Siemens Programmable Logic Controller Laboratory Training Units
Steve McGough, Alberto Sanchez, Wes Haugo
Kyle Larson, Engineering and Design
Donald Richter, Engineering and Design

A programmable logic controller, or PLC, is a digital computer that can control output devices based upon input devices that interface with a user defined program. PLC's are powerful tools that allow for the automatic control of electric motors, pneumatic and hydraulic cylinders, magnetic relays, and many other devices. The Engineering department has been using Allen Bradley PLC's as a teaching tool in the Robotics and Automation course. Last year Dr. Richter was able to get a donation of PLC's from Siemens to help supplement and expand the number of teaching aids at his disposal. Our Senior Project team was tasked to assemble new teaching units and new interactive light boxes. We were also tasked with modifying the existing laboratory experiments to create experiments specific to the Siemens product.

Active Object Tracking
Conor McMillan, nathan Hirsch
Esteban Rodriguez-Marek, Engineering and Design

Computer imagine processing has entered a new realm with products such as the Microsoft Kinect. These devices generate a 3d map of their field of view using a system of structured infrared light. Once the depth field is generated the software can lay over the RGB image thus creating tracking maps. Using open source tools and off the shelf components we are able to actively follow an object with the sensor making sure it stays in the center of the frame.

Cheney’s Own Urban Heat Island
Ryan McNair, Axell Gutierrez, Miles Rinne, Erin Finneran
Robert Quinn, Geography and Anthropology

An urban heat island is the difference in temperature of a town or city when compared to its vegetated surroundings. The Micro-Climatologists of Dr. Robert Quinn’s (Axell Gutierrez, Erin Finneran, Miles Rinne, Nick Ulrich, and Ryan McNair) set out to find the distribution of the urban heat island. The urban heat island wasn’t very strong but was still present. The heat island is created by many factors within a city, the incoming solar radiation is absorbed differently on non-permeable surfaces such as asphalt, concrete and buildings. These surfaces retain more heat which is slowly released back out to space creating a “Heat Island”. Although during the experiment there were many variables that arose that could change the outcome of the temperatures. These variables were: whether the recording sites were in the sun or shade, were the sites in vegetated areas or urbanized areas, turbulence of the air around the site, topography of land. We took three readings at each location two hours before dusk which turned out to be a little early to maximize the urban heat island effect.

Climbing the Economic Ladder: Latino business owners in central and eastern parts of Washington
Jereny Mendoza
Martín Meráz García, Chicano Education

The population of Hispanic/Latinos is growing faster than any other segment in the state of Washington. According to the U.S. Census, Latinos currently represent 11.7% of the population in Washington; this rapid growth has in turn created the opportunity for Latino-owned businesses to be successful. While this is evident in small towns or cities where the majority population is Latino, very little information exists to inform business owners or the broader population about how Latino businesses have succeeded. This study analyzes the factors that help or hinder their chances of owning a successful business and raises awareness of the success or lack thereof among Latino business owners in the state of Washington.
Single-Subject Research Study
Marissa Michalke
Amanda Reedy, Social Work

A single-subject research study was conducted to increase quality of sleep. The goal of this single-case research design was to improve the participant’s sleep latency and sleep quality. The FLAIR model was used for this study. FLAIR includes the following: formulate a question, locate the best-available evidence, assess the quality of the evidence, integrate the evidence with the participant, and review the process. The research question for this study became “What is the most effective intervention to increase the quality of sleep of an adult female?” The literature review provided evidence that tart cherry juice, a juice concentrate that has high levels of melatonin, was able to modestly improve quality of sleep in younger and older adults in two randomized control trials. An ABAB research design was used in which the participant drank eight ounces of tart cherry juice during the intervention phases. The results of this study were promising and provided that tart cherry juice was able to moderately improve the participant’s quality of sleep in two areas: sleep latency and sleep quality.

Analysis of the Nucleoside Triphosphate Phosphohydrolase I Gene from the Diachasmimorpha longicaudata Entomopoxvirus
Sarai Milliron
Luis Matos, Biology

The Diachasmimorpha longicaudata entomopoxvirus (DIEPV) is injected into fly larvae by the parasitoid wasp D. longicaudata during oviposition. Further research of DIEPV cannot progress because researchers disagree on the classification of the virus. Analysis of key EPV genes will facilitate the correct classification of DIEPV. The nucleoside triphosphate phosphohydrolase (nph-I) gene is a good candidate for this because its product (NPH-I) is essential for successful virus replication. Here we tested the hypothesis that the nph-I gene and protein are distinct from its Alpha or Beta EPV homologs. We isolated, sequenced, and analyzed the DIEPV nph-I gene and its predicted protein product. We determined that DIEPV nph-I shares three conserved domains and five regions of homology with other EPVs and chordopoxviruses. The nph-I gene and its protein product are similar to but also very distinct from their respective Alpha or Beta EPV homologs. This supports our hypothesis and suggests that DIEPV should be classified into the Gammaentomopoxvirus or in its own genus.

Human NUDT16: A nucleotide pool sanitizing enzyme
Heather Molvik, Natasha Peay
Nicholas Burgis, Chemistry and Biochemistry

Any student that has taken an introductory course in biology probably has discussed the bases of DNA; adenine, guanine, cytosine and thymine. These bases are incorporated into the DNA as deoxyribonucleotides. However, it is not commonly known that there are alternate nucleotides such as inosine triphosphate (ITP). When ITP is incorporated into the genome in high enough quantity, it will cause chromosomal alterations that lead to fragmentations, rearrangements and mutations. These can have detrimental side effects such as cell growth arrest and cancer. The cell’s strategy regarding abnormal nucleotides such as ITP is to synthesize enzymes which hydrolyze the triphosphates into their inactive monophosphate form. ITPase is the model enzyme in sanitizing DNA precursor pools while NUDT16 is a recently reported player which works on deoxynucleotide diphosphates. Our research project is centered on obtaining new data about NUDT16 by conducting biochemical and in-vivo assays. Our characterization will be discussed.
The Psychological Impact of Domestic Violence within the Mexican and Mexican American Community
Nancy Munoz
Christina Torres García, McNair Scholars Program

Intimate Partner Violence (IPV) is widespread generally throughout the US population, as well as the Latino community.1 There has been an extensive amount of research on the effects of domestic violence on women; however, little research has been centered on the psychological impact of domestic violence on the Mexican and Mexican American women who immigrate to the United States. Nevertheless, data from previous researchers, implies, that Latina women who in the past been victims of domestic violence had radically larger trauma-related symptoms, depression, lower social and personal self-esteem, and were less likely to make global ascriptions for constructive actions than were non-Latina women. My research provides possible factors contributing to the domestic violence as a prevalent phenomenon within the Mexican and Mexican- American Community such as, immigration, socio-economic status, gender roles, depression, marianismo, machismo, familismo education, history of violence within their homelands, the Mujeres de Juarez, and a comparative analysis of violence among Mexican women and non Mexican women. This research will grant other scholars and others the ability to grasp a better understanding of these women’s culture and experience with domestic violence through their own voices. In addition, this research is vital to spread awareness of domestic violence within the Mexican American community and to help promote programs that will not only assist them but also cater to their specific needs.

A Multi-Layered Approach to Prevent Unauthorized Access to a Database
McKenzie Murphy
Dan Li, Computer Science
Stu Steiner, Computer Science

Security flaws have hindered the ability to implement Electronic Health Records (EHR). An Attribute-Based Encryption (ABE) system is a public-key encryption system where decryption is dependent on attributes common between the user key and the cypher key. The concept of ABE is an effective way to secure a database containing sensitive information, such as EHRs; however, there are security flaws with ABE when the attributes are coupled with the database. Security flaws contained within SQL Injection allow access to the data without the correct attributes. This work presents a multi-layered approach to prevent unauthorized access to a database. The work is segmented into three goals: Separating the access point containing the attributes from the database, Protect the encrypted user attributes with the implementation of a modified SQL_rand tool, Develop a scheme for parsing the requested. This multi-layered approach is designed towards protecting EHRs by only authorizing trusted users and limiting the amount of information those users are able to view based off of their attributes.

The Importance of Being Edited
Jordan Neels
Teena Carnegie, English - Technical Communication

In Service Learning, students apply their classroom training to a real-world project for a local organization and positively impact the community. Students exercise professional communication, accruing both classroom education and professional experience. By incorporating Service Learning projects into a technical communication degree, students apply the knowledge gained to work with a community partner. Students submit a project proposal, recommendation report, and final product to a community partner. Because of the length of these projects, students establish a relationship with the community partner and practice communicating professionally and succinctly. Editing is often overlooked as a substantial service learning project, however, it encompasses editing hard and soft copy, designing page layout, and maintaining author/editor relationship. In this poster, I illustrate the advantages of editing. My team edited YWCA’s website, analyzing color use and page layout, improving content, grammar, and spelling and increasing visual appeal and content clarity of YWCA’s site.
Document Design in Service Learning
Jennifer Nelson
Teena Carnegie, English - Technical Communication

In service learning, “Students learn and develop through active participation in thoughtfully organized service experiences that meet actual community needs and that are coordinated in collaboration with the college or university and community or government organization.” (Kiltz, 2010) A key characteristic of service learning is a reciprocal relationship between the community and university. Service learning is integral to the technical communication program at EWU. Each class works with local organizations on a project in a reciprocal relationship. For example, the professional communication course worked with Our Place Ministries, who serve the low-income West Central neighborhood of Spokane, to redesign their resource guide. The redesign helped Our Place and gave students experience working with a client to address an important social need. In this poster, I show the skills I learned redesigning the guide. I learned the importance of layout, hierarchy, and readability to an effective document. With a redesigned resource guide, Our Place was able to better serve their population.

Synthesis, Isolation, and Pharmacological Analysis of Analogues of Nicotine: Benzylidene substituted Myosmines
Thu Nguyen
Travis Denton, Chemistry and Biochemistry

Nicotine is a stimulant that is well known for its ability to bind to and activate or inhibit nicotinic acetylcholine receptors (nAChRs). Currently, a number of selective ligands are available to study nAChR function beyond nicotine itself. Myosmine is a tobacco alkaloid that shares many similarities to nicotine. Myosmine and myosmine derivatives have shown potential applications in Alzheimer’s disease research, smoking cessation and other fields. The focus of this research project is the functionalization of Myosmine using the Aldol condensation reaction to create a library of benzylidene functionalized myosmines. This class of compounds has shown some unique advantages and can be used as precursors for a larger library of myosmine analogs. To test the activity, the compounds are screened as ligands for multiple forms of acetylcholine binding protein (AChBP), soluble surrogates of the different nAChRs. The results obtained in these assays determine the potential of the compound for future study. Preparation, isolation steps, and biological activity of the compound will be discussed.

Decreasing Handoff Time in Roaming Wireless LAN’s
Eric Nielsen
Carol Taylor, Computer Science

Abstract- Wireless LAN’s are becoming more prevalent as a means of accessing the internet. With the expansion of Wireless LAN’s there is a need to increase the speed and efficiency that users experience when roaming from AP to AP within Wireless LAN’s (WLAN).
This paper will focus on providing faster handoff times from AP to AP within WLAN’s, by using a three-way handshake and employing a candidacy list of AP’s. By combining three-way handshake and candidacy lists I hope to achieve roaming authentication speeds less than 50ms. In accomplishing this, a user will experience un-interrupted wireless service while transferring from one AP to another AP.

Optical Character Recognition
Brian Oens, Raymond Swannack
Esteban Rodriguez Marek, Engineering and Design

A popular industry right now is Optical Character Recognition, or OCR. The concept is to locate text within images and then transcribe that text into a file that can be viewed on a computer. This is useful for making digital copies of paper documents, such as old marriage certificates. With digital archiving becoming more and more popular the need for this
kind of software is growing. We created a program that can detect text within an image file and convert it, with reasonable accuracy, into a text document. We have greater accuracy with the more common font types, but in almost all fonts we were able to retrieve a majority of the text.

**Chicano Arts and Culture in Film**  
**Coleen Ohm**  
*Martín Meráz García, Chicano Education*

The film industry has a low percentage of Chicano/a films and filmmakers compared to other ethnic groups. Films are often created to tell stories of history and of culture. Early Chicano films cast stereotypes of Mexican Americans as bandits, drunkards, uneducated, or impoverished workers, and often over-dramatized or portray a satirical view of the culture. Chicano/a filmmakers help shed light on Latino/a culture through their art. Chicano Movement pioneer and filmmaker Luis Valdez tells stories of famous Chicano characters in his films *Zoot Suit* (1981) and *La Bamba* (1987). Valdez helped broaden the scope for other Chicano art and artists to grow. In this paper I will show how there is still a need for Chicano/a films and filmmakers to help spread the stories, history, and culture of Mexican Americans. I will be using scholarly reviews and interpretations of Latino film(s), along with data analysis of Chicano cinema.

**Expressing the Chicano Culture: A low riding experience**  
**Ian O'Neill**  
*Martín Meráz García, Chicano Education*

This research paper focuses on the rich heritage of the Chicano people who chose to express their culture through the customization of vehicles. I discuss the history of the automobile in the Chicano culture and the reasons why low riding became such a dominant idea for Chicanos. This paper will show how customizing in terms of painting, lowering, sculpting, and fabricating gave the Chicanos a favorable alternative activity instead of joining a gang. I will further discuss how this positive movement motivated and generated a generation of workers who excelled in the field of automobile customization through their artistic capabilities and/or their skilled labor learned during WWII. My paper will show how customizing helped integrate art and politics especially during the Chicano Art Movement. Many chose to express their needs and also the needs of their community through their designs and intricate paintings found throughout their vehicles. I will be utilizing popular Chicano magazines, books on Chicano art, and history books focusing on the low riding generation.

**Music, the Brain, and Nietzsche**  
**Mary Ormsby**  
*Thomas Hawley, Government*

Music has been a part of human society for centuries, but Friedrich Nietzsche was one of the first to suggest that there was a therapeutic quality to music. At the time, this was considered to be a ridiculous thought. In more modern times, research has begun that delves into the theory that Nietzsche first presented. This research suggests a strong tie between music and neurological effects on functions such as memory, spatial awareness and mathematical ability. Music is beginning to be used as a therapy for children and adults with disabilities, and there is a focus on the effects music has on children with autism. This presentation discusses some of the effects music has on the brain and how this research validates some of what Nietzsche believed.
Boundary Layer Theory and the Blasius Function
Jose Ortiz Jr.
Yves Nievergelt, Mathematics

Whether a person is standing still or running outside, they will encounter some kind of fluid flow throughout their body. Regardless of the speed or shape of an object, boundary layers are created that create patterns of flow over that object. Mathematical models have given scientists the ability to measure these patterns such as the Blasius Function. Using a computer program called MATLAB, I was able to visually represent the function after changing the function itself from a partial differential equation into an ordinary differential equation (ODE) of order 3. From the ODE I was able to construct a power series allowing for some approximations of the function since no closed form of the equation is known thus far. These techniques applied in visualizing fluid flow over an airfoil on a plane allowing for a better understanding of the effects of pressure and speed against the airfoil.

The Car Talk Trip
Breeanna Page
Frank Lynch, Mathematics

This project examines a weekly puzzler from the radio show Car Talk. The puzzler describes an automobile that is traveling 75 mph and is 75 miles from its destination. The trip is completed by traveling one mile at 75 mph, one mile at 74 mph, etc., until the last mile is traveled at 1 mph. The goal of the puzzler is to determine how long (if ever!) it takes to arrive at the destination. We describe an exact method and two approximations for solving the puzzler. The approximations incorporate rich concepts from Calculus and ultimately lead to the discovery of Euler's constant.

Geotechnical Engineering: Strain behavior of in situ soil from Five Mile Prairie, WA
Andrew Perham, Joseph Peters
Richard Orndorff, Geology

The residential construction site is located at 9117 Scarlet Sky Drive on the southwest margin of Five Mile Prairie, WA. The footprint of the proposed structure overlaps two soils. Near the road is fill material brought in to form the extended road bed. Further from the access road is the extant soil that formed in place on the prairie. A 0.43 acre triangular lot with an average slope of 20 degrees is oriented to the SW at an elevation of 2,400 feet. The lot consists of fill soils containing natural basalt gravels and boulders, and the in situ soil is predominately sandy-loam. This study presents results for unconfined compressive strength according to ASTM standard D2166-85. This test reveals strain behavior of in-situ soil resulting from applied compressive stress and allows identification of the yield strength (elastic/ductile boundary) and ultimate strength (point of rupture) for soil, characteristics that play an important role in the ability of soil to support a structural load.

Heavy Metal Uptake in Stormwater Gardens (Spokane, WA)
Andrew Perham
Carmen Nezat, Geology

Low impact development technology has become a viable resource in combating the increased amount of stormwater runoff in urban settings, and a key physical aspect of this is the bio-infiltration cells, or storm gardens. Stormwater samples were collected from several storm gardens located on a major arterial in Spokane, WA, and from an adjacent city park pond into which the treated stormwater is discharged. Stormwater samples were also collected on a parallel arterial that does not contain storm gardens. Water samples were analyzed for concentrations of heavy metals using an ICP-OES with a particular focus on zinc due to its impacts on the aquatic ecology of the Spokane River. Concentrations of trace metals and common cations showed spatial variation between locations with no observable patterns. For example, zinc concentrations ranged from 0.009 – 0.048 mg/L which are below the stormwater permit benchmark (0.117 mg/L). Magnesium concentrations ranged from 14.4 mg/L – 90.0 mg/L, and calcium concentrations ranged from 5.93 mg/L –
35.3 mg/L with the highest concentration being at the Cannon Hill pond (discharge site). Plant material will be compared between storm garden and non-storm garden flora in order to assess the degree of heavy metal uptake from the vegetation within the garden. Understanding the impacts these storm gardens have on the geochemical makeup of stormwater will play a crucial role in future discussions of stormwater mitigation and the implementation of low impact technology into city or county projects.

**Kinematic Analysis of the Beacon Hill Mylonite**  
*Andrew Perham, Nicole Butz, Joseph Peters*  
*Chad Pritchard, Geology*

Kinematic analysis the Beacon Hill mylonite in Spokane, WA was conducted to describe the nature of this shear zone. The Beacon Hill mylonite is part of a large N-S trending anticline known as the Spokane dome, which makes up the southern end of the Priest River core complex located in eastern Washington, northern Idaho, and southern British Columbia. Strike and dip measurements of the foliations, in addition to plunge and trends of slicken-surfaces, were taken in the field and from the Spokane NE quadrangle. These data were plotted on equal area stereonets using Stereonet 9.0.1. A thin section analysis was conducted using petrographic microscopes in the Eastern Washington University Petrology lab. The trend of the slickenlines, and the porphyroclastic deformation viewed in thin section indicate the mylonites formed in an east-west extensional shear zone, which is consistent with previous studies done by Rhodes (1986) and Till (2007).

**Water Level Reduction in Lake Mead**  
*Andrew Perham, Lucas Snyder*  
*RICHARD ORNDORFF, GEOLoGY*

Lake Mead is a 247 square mile reservoir and the result of a water resource project that was developed during the 1930’s by the Federal Bureau of Reclamation. The dam stands 60 stories and restricts the heavy flow of the Colorado River creating Lake Mead which is 489 feet deep. The purpose of this massive structure is to provide hydroelectric power, irrigation, and drinking water to the American southwest. Ninety percent of southern Nevada’s water comes from Lake Mead, and it serves as flood control for the communities downstream. Increasing desert populations puts strain on the reservoir, creating an ominous threat to several unsustainable communities. Precipitation in this region is far less than evaporation, which for a large body of water such as Lake Mead, equates to a very large amount of water lost to the atmosphere because of the surface area of the reservoir. The available fresh water on earth’s surface is limited and should be managed extremely carefully.

**Service Learning and Grant Writing**  
*Elise Pettyjohn*  
*Teena Carnegie, English - Technical Communication*

Service learning is a teaching method that includes community service through processes that benefit both the students and community partner. A critical factor of service learning is civic engagement. Civic engagement is collective actions that address public concern. Working with a specific organization enables students to impact the community and gain hands on experience. According to Tania Smith, “Clients may be depending on the work and a failure to deliver has the potential to damage community relations with local industry” (2001). In ENGL 407 I worked with SNAP (Spokane Neighborhood Action Program) to write grants for the Living Green program, which is a program that provides environmentally friendly options for low income individuals. SNAP assists around 45,000 people yearly. These people can benefit from additional services which can be funded by grants from service learning. My group impacted the Spokane community by writing a proposal to Washington Foundation for the Environment. In this proposal I will illustrate the importance of grant writing for the community.
Tejano Music
Derek Phakoo
Martín Meráz García, Chicano Education

Tejano music originated in the southern part of Texas and has spread all over the world. It has produced some of the most famous musicians of our time. Tejano music is also called conjunto music. This music is a cross between blues and country and originated on the farms and ranches of Southern Texas in the early 19th century. This music came about due to the Mexicans, German and Czech immigrants sharing music traditions. This combined polkas with classic Mexican folk music. It was the Mexican Revolution that lasted from 1910-1917 that is responsible for this genre of music and two important standouts of Tejano music are Carlos Santana and Selena Quintanilla.

The Sentinel Gap Osseous Rod
Christen Phaneuf
Jerry Galm, Anthropology

Osseous rods, made of both bone and ivory, occur in Paleoindian sites across North America. A sample of these rods share similar traits and has led some researchers to posit possible functional correspondences. This paper will examine a bone rod found at the Sentinel Gap site (45KT1362), a 10,000-year-old late Paleoindian site located in central Washington. Morphometric data are provided and compared to information published on other early-dating osseous rods. Potential functions of this rod will be reviewed along with the possible uses of osseous rods recovered from other Paleo/late Paleoindian sites.

Recent Developments in the Determination of Copper by Electrogravimetric Analysis (EGA)
Kristina Pikalova
Wes Steiner, Chemistry and Biochemistry

The purpose of electrogravimetric analysis is to quantitatively determine the amount of metals in solutions through the process of electrolysis where the metal of interest is deposited on to an electrode. In this experiment the focus was to improve the overall experimental design in the determination of the percent copper in an unknown sample and a quality control standard. Experimental design improvements included the minimization of procedural time and the consumption of materials while still retaining a high level of accuracy. The unknown samples and quality control standards were first dissolved into solution then the resulting copper ions that were formed were reduced to copper solid on a large clean platinum gauze working electrode (i.e., cathode) while at the same time H2O was oxidized to O2 on a clean small platinum gauze counter electrode (i.e., anode). The increase in weight of the large platinum gauze working cathode electrode at the conclusion of electrolysis experiment was then used to calculate the percent of copper in the unknown samples and quality control standards.

Does Money Buy Wins? An Investigation on the Determinants of Winning Percentage for College Football Programs
Jordan Pope
Kelley Cullen, Economics

Revenues in college football are becoming larger and larger each year. Due to this, an investigation into the effect that an increase in revenues has on winning percentage is the next step. This question is important because it could give athletic departments a quantifiable way to achieve higher winning percentages. There are other possible factors as well that contribute to a team’s success. An econometric model will be used to investigate the relationship to winning percentage of revenues in addition to other possible explanatory variables including whether a school is in the BCS or FCS, recruiting classes, stadium renovations, coaching tenure, previous winning percentage, average attendance, and the existence of a
conference network. Although there have been studies looking at revenues at BCS institutions, research into the FCS schools has so far been limited. The first hypothesis will be that an increase in revenues will have diminishing returns to winning percentage. Additionally, coaching tenure and recruiting class also will have positive effects to winning percentage.

**Alcohol Consumption Among College Students Based on Academic Major**

*Beverly Pray, Kylee Davies*

*Theresa Martin, Psychology*

For many universities drinking among students has resulted in several consequences such as poor academic achievement, risky behavior, and alcohol related disorders. While research has been conducted in this area, little exploration has been done looking into the differences in drinking habits between various academic majors. For our study we specifically looked at two groups; psychology majors, and all other academic majors. We developed a short online survey that asked 158 students about their drinking habits and preferences. Within the survey questions ranged from basic demographics including major and GPA, to questions looking at consumption habits. After splitting our participants into one of the two groups we ran a series of t-tests based on the drinking habits and preferences between them. Though our study did not find a link between majors and GPA or alcohol consumption amounts, the data did show a statically significant relationship between psychology majors and brand when it came to reasons for consuming alcohol. Due to the outcome of this study further research is needed.

**Evaluation of Tower Mountain/ Rocks of Sharon**

*Jason Pritzl, Luke Snyder*

*Chad Pritchard, Geology*

The Rocks of Sharon, at the top of Tower Mountain, are part of the Iller Creek Conservation Area just south of the Dishman Hills Natural Area and are comprised of a bizarre assortment of igneous bodies that are in contact with high to low-grade, metamorphosed sedimentary rocks. The goal of this project was to determine if it is feasible to produce the pegmatites and granites from the quartz-rich bedrock as partial melts, or if they must have been sills and dikes. There are multiple outcrops along the ridge of Tower Mountain that contain quartzite and paragneiss outcrops which display complicated relationships to pegmatites and foliated granites and fine-grained granites. Samples from this area were collected at outcrops displaying feldspathic quartzites, paragneiss and mica-rich pegmatites in contact with sedimentary rocks. The rock samples that were collected from Tower Mountain were taken to Washington State University to undergo chemical analysis in the Peter Hooper GeoAnalytical Laboratory. Whole rock chemistry was measured from ground-fused beads using a ThermoARL XRF.

**An Examination of the Supply and Demand of the Spokane County Local Food Economy**

*Jeri Rathbun, Quinton Baker, Zach Bond, Kathryn Wood*

*Mary Ann Keogh Hoss, Other*

MPH students at EWU have committed to a two year project regarding local food. To commence this project, the group examined the following question: does the supply of fresh produce in Eastern Washington and North Idaho meet regional demand? Our group retroactively traced the components of local food systems in an effort to understand food access, and to determine the extent to which food consumed locally is locally procured. The components of the area food system include production, processing, distribution, and retail. Our research methods comprised of phone surveys of area retailers and distributors to gain information regarding food sourcing, and examined current available research of the local food landscape. The research indicates that local supply of fresh produce does not meet regional demands. Additionally, we found that Spokane County lacks the processing facilities to support such a local food system. We have determined that the presence of a processing industry has the potential to improve local food access and would strengthen the local food landscape.
From Classroom to Corner Office: How service learning projects prepare students for their career path
Lauren Reichert
Teena Carnegie, English - Technical Communication

With service learning being a relatively new teaching method, many instructors underestimate the benefits it can present to students. Current methods of teaching such as lectures have proven effective, but with the integration of a service learning project, students will have the opportunity to “integrate community service with informed application of classroom principals” in a real world problem setting (Rehling, 77). In this poster, I will use a service learning project I completed to examine how service learning into a curriculum will teach students the skills to complete projects similar to ones they will encounter in a career field. These projects will not only better prepare students for their career field, but provides experience that can be reflected in a resume or interview. The project completed for Our Place Ministries demonstrates how I was able to take concepts learned in lectures, and apply them in a project that benefited the community. This provided me with not only writing and editing, but project management experience as well.

A Comparative Study of the Biological Soil Crust Community and Ventenata dubia in the Basalt Intermounds of the Turnbull National Wildlife Refuge Mima Mound Prairie
Nita Rektor
Suzanne Schwab, Biology

Biological soil crust (BSC) plays an important role in arid and semiarid ecosystems effecting soil nutrients, wind and water erosion, and infiltration. Our measured and compared the percent cover of the BSC community and Ventenata dubia, an invasive annual grass (IAG). The purpose was to determine the change in mean percent cover between the 2012 and 2013 survey years. The survey was located within the basalt intermounds of Turnbull National Wildlife Refuge. Seven transects with four plots each were surveyed. There was a significant difference in the mean percent cover for individual species within and between 2012 and 2013 (p<.0001). The mean percent cover for V. dubia was significantly lower in 2013 as compared to 2012 (p<.0001). The mean percent cover for areolate lichen was significantly higher in 2013 as compared to 2012. There was a consistent correlation between V. dubia percent cover and the individual mean percent cover of top three producing biocrust species over the 2012 and 2013 survey years. The strongest correlations were observed in 2012.

Untangling the Magnetochemical Properties of a Ni(II)-bifluoride Coordination Polymer Using Diamagnetic Dopants
Melissa Rhodehouse
Jamie Manson, Chemistry and Biochemistry

Previous works have identified [Ni(HF\(_2\))(pyz)\(_2\)]SbF\(_6\) (pyz = pyrazine) as a coordination polymer with infinite one-dimensional Ni-FHF-Ni chains propagating along the c-axis which are linked via pyz bridges in the ab-plane to afford three-dimensional polymeric frameworks with SbF\(_6\) counterions occupying the interior sites.\(^1\) Pulse-field magnetization at high critical fields and low temperatures is inadequate to describe magnetic susceptibility maxima and distinguish between exchange interaction (J) and zero-field splitting (D). Herein, a purely diamagnetic system, namely, [Zn(HF\(_2\))(pyz)\(_2\)]SbF\(_6\), with identical structure is synthesized and characterized by X-ray diffraction. Doping of 2-10% Ni(II) ions into this Zn(II) analog will eliminate the exchange interaction (J) and allow for zero-field splitting (D) to be examined and further explain the magnetochemical properties of [Ni(HF\(_2\))(pyz)\(_2\)]SbF\(_6\),
Investigation of the Symmetry Groups in Tessellating
Angélica Rodríguez, Jamie Palmer, Traci Hart
Jacqueline Coomes, Mathematics

This project is an investigation of the symmetry groups in tessellating. I will be investigating the characteristics of each type of symmetry such as lattice type, the rotation orders, and the reflection axes, along with the names that were given to each and why that may be. Furthermore, my goal after doing this investigation is to create a lesson/lessons for a high school class so they can explore the symmetries themselves using prior knowledge they have learned about translations and become familiar with their characteristics so they can recognize the symmetries in their every day environments.

Discrimination Against Morning and Evening People
Leah Ruiz, Blake Gimbel, Aaron Walsdorf, Kara Winkleman
Amani El-Alayli, Psychology

Research on stereotypes of morning and evening people has shown there is a more negative image of evening people overall (Collins et al., 2013). The present study examined potential discrimination against individuals based on circadian preference. We hypothesized that participants would prefer a morning person for activities requiring responsibility. We also hypothesized that evening people would be favored for lazy, illicit, creative, and exploratory activities. Participants completed the Morningness-Eveningness Questionnaire (Horne et al., 1976) and a discrimination measure asking participants if they would do various activities with a morning/evening person. Results showed a preference for morning people over evening people for activities that require the person to be responsible. Furthermore, evening people were preferred for activities that were considered to be lazy, illicit, and exploratory. Thus, the stereotypes that exist for morning and evening people are used as the basis for discrimination.

Distribution of Invasive Plant Species in Northeastern Washington and Adjacent Idaho: Effects on native species composition
Rachel Salazar, Neville Magone
James Hallett, Biology

When habitats are subjected to human disturbance (e.g., overgrazing, agriculture, mining), native plant species are typically lost. Disturbance can also provide opportunities for invasive or weedy species, which can further reduce numbers of native species. We are exploring these relationships on both undisturbed (reference) and disturbed sites. Our dataset consists of observations of plant species observed on 24 reference and 68 disturbed sites on Tribal lands in northeast Washington and northern Idaho for eight habitat types. Approximately 19% and 51% of perennial and annual grass and forb species were nonnative. To analyze the impact of disturbance on native plant distribution, we first examined the distributions of invasive species in the region using GIS analysis. We then looked at similarities in species composition of non-native species at sites across the region. The relationship between native and invasive species composition is complex and depends on the habitat type, geographical location, and history of the site.

Social Desirability and Risky Behavior
Diana Sanchez, Charalambos Cleanthous, Ryan Sain, Kyle Bailey
Charalambos Cleanthous, Psychology
Ryan Sain, Psychology

A problem in social research is social desirability, that is, a person attempting to present one’s behavior in a more socially desirable way. In the current research, social desirability presents a potentially serious problem. In order to examine the influence of social desirability we examined this phenomenon in regards to self-reported risky behavior. In particular, we examined the self-reported rates of sexual activity, condom use self-efficacy, and alcohol consumption.
Basalt Ring Formations of the Columbia River Plateau
Skye Schillhammer, Carly Sorensen, Ted Uecker, Natasha Garland
Chad Pritchard, Geology

Unusual basalt ring formations are located about 6 miles north of Odessa, WA as part of the expansive Columbia River Basalt Group. There are over 100 crater-like structures that range in size from 50-500 meters in diameter and span a 60 kilometer area of the channeled scablands. These structures are enigmatic due to the erosion of surficial features by the Missoula Floods, and due to their association with a magnetic anomaly as evidenced by an aerial geophysical survey. Since the 1970s, multiple geologists have proposed conflicting formational mechanisms for the rings, including hydrothermal explosions and sag flows. Over the past decade many more data sets and studies have been published on the CRBG members and we use these data to re-evaluate past hypotheses for these unique structural features. Our research team measured the stratigraphy of the craters and the surrounding rock and collected samples for XRF analysis. The data suggests that these structures formed by auto-intrusions of the Roza member of the Wanapum formation.

Mobile 3D Reconstruction from Photographed Objects
Jesse Scholer
Yun Tian, Computer Science
Paul Schimpf, Computer Science

Onsite 3D reconstruction of a scene provides a wealth of information in various applications, including crime scene investigation, inspections, and archaeology. Until recently, 3D reconstruction has been too computationally intensive to be practical on mobile devices. In recent years, the advent of smartphones and the evolution of mobile Graphic Processing Units (GPUs) have made 3D reconstruction possible. This work presents an approach that utilizes the capabilities of mobile devices to capture video images of a scene and process the images so that the scene can be reconstructed in 3D. Reconstruction involves using the mobile device to process and combine photographs taken from the captured video along with other spatial and temporal data to create a 3D model of the scene. The overall thesis focuses on building upon previous work in image processing on mobile devices by improving depth mapping of objects in low-light areas, as well as improving the accuracy of spatial recognition by accounting for distortion due to focal length and sensor data on the mobile device.

Quantifying Enzymatic Activity of Immobilized β-Galactosidase
Amanda Sears, Lindy Tinker
Kenneth Raymond, Chemistry and Biochemistry

This project is oriented towards studying the immobilization of enzymes and subsequently the characteristics of their enzymatic reactions. Immobilized enzymes are covalently attached to a solid, supportive material, providing stability with regard to environmental conditions. Immobilizing an enzyme allows it to be recycled for future enzymatic activity. For these reasons, immobilized enzymes are often found in commercial settings, such as cheese production. We immobilized β-Galactosidase by covalently attaching it to a matrix via epoxide reaction. Prior to testing the immobilized form of the enzyme, we assayed the enzymatic activity of the free enzyme, and concluded that our results match the literature values. We continued studying the enzyme in the immobilized form, specifically focusing on the kinetic parameters and stability.

The Role of Executive Function in Learning Among Adolescents
Krystal Seitz, Katie Blanchette, Amanda Helm, Daisy Dice, Heather Provoncha
Donna Mann, Occupational Therapy

Executive function (EF) includes a broad spectrum of cognitive skills that are implicated in higher-level cognition and academic success. These cognitive skills include planning, organizing, shifting attention, working memory, inhibition,
emotional control, self monitoring, and task completion. The BRIEF-SR is an assessment tool which measures these executive functioning abilities via self report. Our research is a continuation of previous work, which found correlations between BRIEF-SR scores and student GPA. We are further analyzing the data to find specific correlations between each of the eight components of the BRIEF-SR and student GPA. With these results, occupational therapists will be able to better develop intervention plans within the school setting to assist adolescents in building executive functioning skills in order to be successful in school.

**Different Perceptions of Business Unethicality Between Accounting Students and Management/Marketing Students**

**Sangyoon Seok, Eunjun Moss**  
Synthia Shin, Management  
Abraham Soleimani, Management

Recent business scandals with large corporations such as Enron with their auditor Arthur Andersen have been investigated as a serious white crime. It is likely that those who are more accepting of others’ unethical behaviors, will probably more easily engage in unethical practices in reality. Business students are the future business practitioners. Thus, we examined the business students’ perceptions of business ethics by adopting the 10-item scales from Cole and Smith’s (1996) research in the survey method. We found that students across the majors in business program generally presented highly ethical attitudes. Specifically, the means of 10 items range from 1.14 to 1.91 on the five-point scale where 1 = strongly disagree and 5 = strongly agree on the given questionable business operation/practices. By comparing the means between two groups: accounting student vs. business/marketing students, we found that accounting students were less accepting of the 3 unethical business descriptions, implying accounting students’ ethical sensitivity is not less than that of other majors.

**“Failed Interactions”: What happens when service learning projects don’t turn out as expected**

**Griffith Shelley**  
Teena Carnegie, English - Technical Communication

When discussing service learning projects, “Instructors who assign client projects have a responsibility to prepare students to interact with clients” (Breuch, 2001). In theory, a service learning project benefits everyone. Students experience working with real-world community partners, community partners get novel approaches to solving problems, and everyone comes away happy. However, these interactions can end in no-result scenarios or failures. But no-result service learning project scenarios are rarely published. The over-arching belief is that valuable projects are successful projects. In actuality, the crucial element in a service learning project comes as real-world experience, be it positive or negative. This poster shows the value in a no-result service learning project. I helped write a grant for Habitat for Humanity. Due to miscommunications, a lack of information, and a scarcity of sponsors, the proposal did not acquire any funding for Habitat for Humanity. Despite these setbacks, this service project provided valuable real-world experience and was not a failure.

**Día de los Muertos**

**Emily Sherman**  
Martín Meráz García, Chicano Education

Día de los Muertos, or Day of the Dead is a Mexican holiday put in place to honor those who have passed away. During the celebration the streets near the cemeteries are filled with decorations of papel picado, flowers, sugar skulls, music and parades. Unlike American culture which views death as a very somber event, the Mexican culture has learned to embrace it as a natural part of life. On this day the dead are thought to wake from their eternal sleep and join the celebration with their family and friends. This paper explores the history of Día de los Muertos and how it is celebrated today in the United States. In this study I use peer reviewed articles as well as magazines and books published by a variety of Chicano scholars.
SNP Analysis of ATP 6 and Potential Celiac Disease Therapy from Novel Environmental Sources
Jessica Shuster, Hannah Sylvester
Randall James, Biology

Carbohydrates are an essential component of human diets. Starches commonly eaten include corn, beans, oats, barley, rye, and rice. The “cereal starches” are oats, barley, wheat, and rye. These all contain gluten. One in 133 people in the United States have sensitivity to gluten, called celiac disease, which is an autoimmune disorder. This means that there is an abnormal response from the immune system when an affected person eats gluten. The villi of the small intestine is damaged when gluten is ingested, which interferes with nutrient absorption. There are a limited number of treatment options, such as gluten free diet which is difficult because sometimes even GF labeled foods contain trace amounts of gluten. Our objective, using DNA extraction, PCR and sequencing, is to assay gluten consuming arthropods, microbes and wheat seed for novel glutenase enzymes with potential therapeutic value.

Cost-Shifting and the Patient Protection Affordable Care Act: A Washington State case study
Kyra Sims
German Izon, Economics

The objective of this study is to estimate payment-to-cost ratios (PCRs) for commercial insurance and public insurance, using data from the year-end financial report per hospital published by the Washington State Department of Health. Due to the productivity adjustment provision in the Patient Protection Affordable Care Act (PPACA), understanding the degree of cost-shifting in hospitals’ pricing is vital. The PPACA calls for annual cuts in Medicare payments to hospitals of 1.1% per year. Since for many hospitals in the State Medicare represents up to 49% of their total revenue, decrease in Medicare could result in higher PCR’s from commercial insurance. Due to difficulty in obtaining hospitals’ price information, I apply the methodology presented in Levit et al. (2013) to estimate PCRs. I use the PCRs to examine whether there is a statistical correlation between the PCRs by public and commercial insurance payers. The dependent variable is a PCR paid by commercial insurance. The independent variables include a PCR paid by public insurance, as well as other price influencing factors.

Site-Directed Mutagenesis of Glutamic Acid 22 in Human ITPase
Jonathan Smith
Nicholas Burgis, Chemistry and Biochemistry

Inosine triphosphate pyrophosphohydrolase (ITPase) is an intracellular housekeeping enzyme responsible for removing abnormal nucleoside triphosphates (NTPs) from NTP precursor pools. This enzyme is encoded by the ITPA gene in mammalian cells and works to hydrolyze the acidic anhydride bond between the alpha and beta phosphates of ITP producing PPi and IMP. It has been shown that ITPase knock-out mice die. The human ITPase (P32T) has decreased enzymatic activity and increases the risk of adverse drug reactions for patients treated with thiopurines, a common immunosuppressant used to treat many autoimmune diseases and prevent rejection following organ transplants. It is possible that a more active version of the enzyme could be used as an adjuvant. Our studies were based upon recent findings that a mutant of ITPase (E22A) has greater activity than the wild type variant. Using site-directed mutagenesis, we have created two other mutants (E22D and E22Q) hoping to find a further increase in the enzyme’s activity.

Service Learning and Technical Communication
Charles Spencer
Teena Carnegie, English - Technical Communication

“Service learning is a relatively new pedagogy merging community service and classroom learning in an effort to improve both” (Matthews, Zimmerman 1999). Students learn lessons outside of lecture and textbooks such as, critical thinking
skills, and how to work with clients and within group settings. Students also learn to think outside their personal life experiences as they encounter new challenges to their perceptions of the world around them. With fresh eyes and an open mind, students provide valuable assistance in addressing a community's needs. In this poster presentation I will examine the results of a group project for Our Place Ministries. I worked with a team to amend a community resource guide to fit the neighborhood they serve. As college students trained to write at higher levels for academic purposes, my team faced the challenge of adjusting our writing level to meet the reading level of the end user, in this case younger children and the homeless. The resource guide design needed to take into account less than ideal environmental conditions during its use.

Structural Analysis and Magnetic Behavior of Ni(HF2)2(3-Fpy)3(H2O) and [Ni(H3F4)(3-Fpy)4]SbF6
Peter Spurgeon
Jamie Manson, Chemistry and Biochemistry

Two novel coordination compounds were recently synthesized by the combination of NiX2 (X = BF4 or SbF6) with NH4HF2 or NH4F and 3-fluoropyridine (3-Fpy). Similar synthetic schemes, including solute concentrations, were used in both reactions. Crystals were obtained in both cases and characterized by X-ray diffraction. With the differences being the fluoride bridging source and the X anion, vastly different structures were found. The mixture of Ni(BF4)2 with NH4F and 3-Fpy produced a material of chemical composition Ni(HF2)2(3-Fpy)3(H2O) that has a chain-like polymeric structure containing discrete monomers connected through strong hydrogen bonds. Reaction between Ni(SbF6)2, NH4HF2 and 3-Fpy yielded [Ni(H2F4)(3-Fpy)4]SbF6 which forms a two-dimensional kagome lattice. Magnetic data were measured over the temperature range 0.5-300 K for both materials. Ni(HF2)2(3-Fpy)3(H2O) shows a broad peak at 3 K in the magnetic susceptibility while [Ni(H2F4)(3-Fpy)4]SbF6 does not show any such feature. The heat capacity of the latter however reveals a broad peak at 2.5 K which becomes suppressed by an applied magnetic field. Detailed experiments to further understand their magnetic properties are currently in progress.

Gaining Agency in Response to Ongoing Violence in Northern Uganda
Moses Ssemakula
Sean Chabot, Sociology

The research explores actions that the local community is taking in response to ongoing direct and indirect violence in Northern Uganda. The project looks at different groups and organizations within region to evaluate and demonstrate how the people are gaining agency as opposed to being dependent on outside forces. The research compares ideas that have been published in sociological books and articles to discuss the aftermath of Northern Uganda’s civil war in an intellectual manner. Due to the unfair exchange of resources, power has remained in the hands of political leaders and other humanitarian organizations. Instead of uniting to create common good, the victims of such inequities end up upholding the existing power structures by depending on them for solutions. If the power structures are to be changed then local people need to trust themselves with the responsibility to create positive social outcomes. The purpose of this research is to show that the local community is capable of learning the skills necessary to resolve ongoing violence hence gaining agency.

Pressurization in Rocket Ignition
Joshua Stebbins, Jeffrey Sunford, Erick McCarthy, Jeremy Flanagan
Kyle Larsen, Engineering and Design

Our project has a focus on answering the question, “How can we obtain a desirable pressure for ignition of rockets with larger motors?” In answering this question, our goal is to work with two different types of starting fuels Boron Potassium Nitrate (BKN03) and Pyrodex pellets. To get the best results from BKN03, we will take its usual granular form and turn it into a pellet with geometry comparable to the Pyrodex pellets. But the binding method used to do this may have some repercussion(s) on the heat and pressure of ignition. Exploring different methods of manufacturing pellets from BKN03
may be taken under consideration. But the main focus of the project is to compare the two different ignition fuels. Using a pressure transducer, we will take many data sets for different size motors/motor casings using both of the two different types of starter fuels. We would like to compare different amounts of each fuel in order to obtain an estimate of the proper amount a person might use in an actual rocket to obtain a desirable pressure. Our desirable pressure range is from 200-400psi.

**Industrial Automated Material Handling Cart**

Aaron Steinauer, Erik Beck, Nick Linthicum, Justin Kellum, Jake Druffel, Paul Daily, Steven McEvoy  
Robert Gerlick, Engineering and Design  
Martin Weiser, Engineering and Design

Industrial Design and Equipment Incorporated (INDECO) is a fine metals fabrication facility located in Ferndale, Washington. The primary markets they serve are that of the stainless steel food service industries, architectural metals, aluminum marine construction, and structural steel. Craig Wasilewski, CEO of INDECO, has expressed a need for a piece of equipment with the ability to manipulate 20+ feet long tube and sheet material from the receiving area of the 2-acre INDECO campus to multiple fabrication staging areas within the shop. The goal of our team has been to conduct the design, engineering, and fabrication of this piece of equipment in the form of an automated material handler with a primary function of producing leaner and safer manipulation of large material in the INDECO workplace. Many mechanical engineering concepts and applications have been used to aid the design and analysis of each portion of this project.

**Optimization of DNA Extraction from Bone Samples**

Jacob Streicher, Dalynn Blais, Ryan Beck  
Randall James, Biology

Different types of PCR inhibitors are in various samples of bone such as humic acids, collagen, calcium, and many others (Bessetti, March 2007). These inhibitors have the ability to hinder the efficiency of amplification. It has been found that the use of BSA and other additives aids the reaction to prevent this inhibition. Samples from bones contain primarily calcium inhibitors; however it also has some amount of collagen. The objective of our study was to optimize DNA extraction from bone while also shortening the length of time it takes to extract a sufficient amount PCR ready DNA from different ages of bone samples. To depict a wider range of results, we tested samples from a 3-year-old Mule Deer, 700 year old American Bison, and 50,000-year-old Wooly Mammoth. Various polymerases were utilized to assess optimization effectiveness.

**Greek vs. Non-Greek Life: Interaction preferences**

Veronica Sustaita, Patrice Frazier, Samuel Infante, Luis Sanchez  
Theresa Martin, Psychology

Students in psychology courses completed a survey regarding their interactional preferences for students who were either Greek members or non-greeks. We expected that clear preferences would emerge such that Greek members reporting more socializing with other Greeks and non-greeks reporting more socializing with non-greeks. One hundred non-Greek and thirty-five greek members completed our survey. Significant differences to questions pertaining to willingness to date Greek members, willingness to live with Greek members, and frequency of associating with Greek members emerged (all ps < .05).
Analysis of the DNA Polymerase Gene in the *D. longicaudata* entomopoxvirus Suggests Classification in *Gammaentomopoxvirus*

Ben Talbot  
*Luis Matos, Biology*

*Diachasmimorpha longicaudata*, a parasitoid wasp, deposits her eggs along with the *D. longicaudata* entomopoxvirus (DIEPV) into a host larvae. DIEPV is a poxvirus but is an unassigned species within the family. The presence of the wasp’s dipteran host suggests the virus is a *Gammaentomopoxvirus*. Analysis of key entomopoxvirus genes that are highly conserved within the poxviridae, will support the virus’s classification into *Gammaentomopoxvirus*. The DNA polymerase (DNA-pol), is one such gene that is highly conserved across a wide range of taxa. We tested the hypothesis that the DIEPV DNA-pol gene is most similar to *Gammaentomopoxvirus* homologs. A series of primers were designed based on a consensus sequence of known DNA-pol homologues. We amplified and sequenced the DNA-pol gene, and analyzed the sequence. The DNA-pol gene and its protein showed significant homology to those from other entomopoxviruses but was distinct from published Alphaentomopoxvirus or Betaentomopoxvirus sequences. Thus we believe that the DIEPV virus should be classified into the *Gammaentomopoxvirus* genus.

Community Engagement and Service Learning: The Kaiser Project

Elahino Theodore  
*Teena Carnegie, English - Technical Communication*

Community engagement equates to being actively involved. This process only offers a plan where people only give their time and knowledge to an organization. A specific type of community engagement is service learning. According to Huckin, “service learning is a method by which students learn through active participation in thoughtfully organized service; and meets the needs of the community” (1997). Huckin’s writing states that service learning students must use skills of what they are studying to complete project tasks. For my symposium poster presentation, I will showcase what I did for the Kaiser Aluminum project. I will also discuss qualities of service learning the Kaiser project afforded. For example, service learning qualities for Kaiser included reciprocity between the organization and the students. Students learned technical communication skills while Kaiser Employees received an improved job plan document. Overall, it helped build a community in the classroom. It also enhanced problem solving skills and critical thinking by redesigning and rewriting a document.

Happiness Might Encourage Spiritual Well-Being

Timothy Timbrook, Justin Schultz Schultz, Savannah Tarr  
*Philip Watkins, Psychology*

The purpose of this study was to examine whether or not spiritual well-being can predict hedonic well-being. This correlation would support the idea that hedonic well-being increases more rapidly in individuals with higher spiritual well-being. A series of tests were administered, which assessed participant’s levels of spiritual and hedonic well-being, at three different time intervals a total of 3 weeks apart. If participants had higher spiritual well-being at the beginning of the study, then the expectation was to see increases in hedonic well-being occurring more rapidly in these individuals. We found no evidence to support that spiritual well-being predicts hedonic well-being over time. Surprisingly, we found that hedonic well-being at Time 1 predicted significant increases in spiritual well-being at Time 2. However, over time spiritual well-being was found to be very stable, which can present problems for correlational analyses. According to our results, spiritual well-being does not predict hedonic well-being, but hedonic well-being might predict increased spiritual well-being.
Understanding the Self: Interpersonal style and intimate relationships

Chelsea Twiss
Theresa Martin, Psychology
Russell Kolts, Psychology

Sexual satisfaction is linked with important facets of life such as overall relationship satisfaction, relationship stability and general well being. It is important that research is done to find the conditions and circumstances under which achieving greater sexual satisfaction is possible. Enter the orgasm: The climax of the sexual experience. Is the event of achieving orgasm related to overall sexual satisfaction for both men and women? Ippolito (2012) claimed that there has yet to be a study conducted which correlates pretending orgasm with overall sexual satisfaction. This study will examine the relationship between pretending orgasm and overall sexual satisfaction for females using the PINNEY sexual satisfaction scale (1985). Self-monitoring will also be measured using the Revised Self-Monitoring Scale (1984) as many of the reasons for pretending orgasm in the current literature revolve around traits, such as hiding sexual insecurities, that would be considered high self-monitoring practices. Sexual history, sexual orientation and other sexual preferences will also be examined.

Heavy Metal Contamination in Urban Soils

Ted Uecker, Shyla Hatch, Natasha Garland
Carmen Nezat, Geology

Soils in urban areas may be contaminated with heavy metals due to the use of fertilizers, pesticides, wood preservatives, and construction materials. Soil samples were collected between October 2013 and April 2014 in Spokane, Washington in residential areas and protected urban wetlands that are home to a variety of wildlife and plant species. The area has been developed since the late 1800s, and is known to have contained orchards, lumber yards, railcar systems, and dumping grounds, but it is not registered as an action site by the EPA. Topsoil samples were collected, leached using trace metal-grade nitric acid and analyzed using an Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES). The results indicate that concentrations were elevated relative to the crustal abundances for each element. For example, arsenic, lead, and cadmium concentrations were about ten, three, and two times higher in the urban soils than the crustal abundances, respectively.

Chicanos and the Criminal Justice System

Scott VanDyke
Martín Meráz García, Chicano Education

Recently there has been a change in the interaction and trust between the justice system and Chicanos. This paper will delve into how interactions between the criminal justice system and the Chicano community have increased as well as examine the support levels or lack thereof within the justice system. I will use survey statistics found in reports from the PEW Research Center and also focus on Chicanos who interact with the justice system on a daily basis. According to a Pew Research Center report, approximately fifty-six percent of Chicanos have had some sort of interaction with the criminal justice system. This paper will seek out the answers of how Chicanos have been affected as they interact with the criminal justice system over time. The appointment or elections of Chicano/Latino judges at the state level and their contributions to the legal profession and their community will be among the main focus, of this study. Keywords: Chicano, Criminal Justice System, Latino Judges.

Spokane Civic Theater Sound System

Jake Varness, Travis Morasch, Brian Velez, Joseph Harrison
Dan Tappan, Computer Science

This project created a wireless sound system for the Spokane Civic Theatre. The theatre currently uses its wired house speakers to play all sound effects for all of its productions. This limits their ability to have different sound effects play
from different directions and requires manual execution of every sound by the technician monitoring the show. Our solution will use portable sound modules that can be placed anywhere in the theatre and play sound via wireless commands received from controller software running on a laptop. The nodes will be self contained devices consisting of a single board computer, a wireless adapter, a speaker and a power source. The modular nature of these nodes will allow crew members to easily move them between acts or shows. The controller software will be able to detect/communicate with these nodes and allows users to preconfigure shows in advance, arranging sounds in a playlist fashion with each sound assigned to one or more nodes as appropriate. The user will be able to adjust the individual settings of each sound and each playlist at showtime.

Cork District Winery Project
Alfredo Vela, Jesse Cummins, Logan Brooke, Travis Melcher
Dan Tappan, Computer Science

There is a collection of wineries in downtown Spokane that are organized into a group known as the Cork District. A system has been envisioned that will bring in customers who are new to the world of wine tastings. The system revolves around customers receiving cards with magnetic strips, then taking them to a winery within the Cork District organization, and redeeming the card for up to three wine tastings. There are to be two subtypes of cards. The first is the standard card; when an individual receives one, they must go online or into the winery to pay for the uses. The second is the promotional card; hotels, casinos and similar entities will buy the cards in bulk, and give them out to their own customers, who can then use them straight away. To address these needs, we are creating a web site that will be able to process credit card transactions and keep track of the usage of cards. The wineries will have software and a card reader that, in combination, will be able to deduct uses from tasting cards and scan credit cards for billing purposes.

Mechanochemical synthesis as a new route to novel Ni(II) complexes
Cecelia Villa
Jamie Manson, Chemistry and Biochemistry

In the synthesis of complex molecule-based solids challenges emerge and new synthetic schemes are required in lieu of traditional aqueous reactions. Novel NiX$_2$(pyz)$_2$ (X=Br, Cl; pyz=pyrazine) can be made using standard solution techniques, however attempts to synthesize the X=F and I analogs were unsuccessful due to limited solubility of the NiF$_2$ and NiI$_2$ precursors. Mechanochemical synthesis allows direct combination of transition metal compounds with pure organic ligands in a high-pressure/temperature environment devoid of solvent. For the first time NiI$_2$(pyz)$_2$ has been created along with the new phase NiF$_2$(H$_2$O)$_2$(pyz). Analogously, CoF$_2$ (insoluble in H$_2$O but soluble in aqueous hydrofluoric acid) was reacted with a pyrazine co-ligand and exhibits infrared (IR) spectroscopic data similar to NiF$_2$(H$_2$O)$_2$(pyz). Further syntheses led to compounds previously synthesized via solution. NiCl$_2$(H$_2$O)$_2$(pz)$_2$ (pz=pyrazole) was first synthesized from solution and later made mechanochemically, however the products were physically different but had similar IR characteristics. These examples illustrate the unique synthetic capabilities of our research, representing a new approach to designer materials which a plethora of new functional systems are envisaged in the future.

Comparison of Shod vs. Nonshod Balance and Postural Sway in Older Adults
Annika Vyakhk
Wendy Repovich, Physical Education, Health and Recreation

With age, cutaneous sensation in the foot sole diminishes, contributing to balance impairment. The purpose was to investigate whether a balance training intervention involving barefoot training (BT) yields better static and dynamic balance, and postural sway values than a group wearing shoes (WS). Twelve older adults were randomly assigned into a BT or WS group, which participated in 50 minute exercise sessions three days a week for six weeks. All participants completed a functional reach test (FRT), single-leg stance (SLS), timed up and go (TUG), 30 second chair stand (CS), and postural sway analysis with eyes open (SEO) and eyes closed (SEC). A 2x6 ANOVA found no significant difference between the two groups for the FRT, SLS, TUG, CS, SEO, or SEC tests. Pearson correlations were run to identify
relationships between variables. A positive significant correlation was found between the static balance measures of SLS and FRT, as well as SEO and SEC in the postural sway test. There were negative significant correlations between the CS and TUG and SEC.

The Ongoing Treatment of a D1 Collegiate Women’s Tennis Player with Undiagnosed Pain of the Lumbar and Thoracic Spine.
Rachel Weiss, Josh Peterson, Medea Bernsten, Ai Ogata
Garth Babcock, Physical Education, Health and Recreation

In the present study, the subject is a 20-year-old female division I Tennis athlete with undiagnosed pain in the lumbar and thoracic spine. The subject has been dealing with pain in her lower back since September 2012. The extensive treatment done on this subject with no relief of pain is what makes this study unique. The subject has seen a physical therapist for several months as well as a chiropractor, and she has received cortisone shots in an attempt to relax the joint and relieve the pain. These treatments have not been successful and the athlete’s symptoms have only gotten worse over time. These results have lead to looking internally at her blood; presently she is on a special diet to reduce the yeast Candida in her blood, which could cause arthritic symptoms, along with her diet she is seeing a chiropractor and doing exercises daily to maintain/increase strength. The subject stopped competing in April of 2013 because the pain was too great to compete.

Service Learning from a Clients Perspective
Adam Wolfe
Teena Carnegie, English - Technical Communication

Service learning projects are integral for developing professional technical communication skills. According to Tania Smith “Students can put theory into practice and gain valuable job-related experience, and businesses can help train and recruit future employees while having certain projects completed inexpensively” (2001). There are three main components to a service learning project: students, instructors, and the client. Many articles exist from the students and instructors point of view, rarely does the view of the clients come to light. My presentation showcases the difficulties and successes of being the client for service learning projects. I was the client and main point of contact for the service learning project for the EWU grant writing class. I work for Habitat for Humanity as an outside consultant, and I set up a meeting with Professor to complete a timeline and a list of documents that the students would need. This is where the challenges as the client began, such as time restrictions, coordinating communication, and access to information.

Riverpoint Campus Food Choices and Availability
Kathryn Wood, Quinton Baker, Zachary Bond
Mary Ann Keogh-Hoss, Health Services Administration

Students committed to an ongoing two-year project focused on local food in Spokane County. A research team began a project to gather data to be analyzed on the food services available on the Riverpoint campus. The team created and administered a survey to a sample size of 337 people from of population of 2600 students along with faculty and staff on the Riverpoint campus. The data was analyzed using a cross-sectional interdisciplinary approach which sampled students throughout various times of day, a 2x2 non-equivalent factorial design was utilized. This approach allowed researchers to compare two independent variables: students who bring food from home and those who do not bring food from home. Based on the results of this work the team discovered that nearly three-quarters of students reported little to no knowledge of food availability on the Riverpoint campus. The intended goal of the food study project was the share the gathered information with current Eastern Washington University students, faculty, and other personnel/programs in association with the Riverpoint food services.
Examining the Genome of Sigma Rhabdovirus Infecting Drosophila Melanogaster in Eastern Washington
Meghan Woods
Luis Matos, Biology

Sigma rhabdovirus infects global Drosophila melanogaster populations at a low rate. In studying the virus' evolution, researchers have only included genomes from the Eastern United States. To better understand the virus' genetic diversity in the United States, we have begun to seek out and sequence the genomes of virus populations in western states. We report the sequence and analysis of a viral genome from a Washington State D. melanogaster population. Flies were collected on a farm and infected flies were identified. We purified RNA using whole flies to extract viral RNA and fly RNA. The entire viral genome was reverse transcribed using a primer complementary to the genome's 3' end and an enzyme. Next, the genome was PCR-amplified in 19 overlapping amplicons. We sequenced both strands of each amplicon. Resulting sequences were assembled and analyzed. The sigma virus genome infecting the Washington D. melanogaster population was similar to but distinct from other genomes. This suggests that wider sampling and genome sequencing is needed to better understand sigma virus evolution.

Various Approaches for the Synthesis and Isolation of α-Ketoglutaramate
Alec Wynd
Travis Denton, Chemistry and Biochemistry

Excess ammonia in the blood is classified as Hyperammonemia, a metabolic dysfunction which is a major contributor associated with acute and chronic liver disease. Urinary analysis shows elevated levels of α-Ketoglutaramate to be present in patients with the disorder, making the glutamine derivative an important biomarker for the diagnosis and characterization of Hyperammonemia. Although the synthesis seems straight forward, there is no current published synthetic route for making α-Ketoglutaramate. Therefore, the goal of this project is to utilize various synthetic strategies in order to optimize a method for the production of this important molecule. The scheme employed will include the use of various protecting groups and coupling reagents to strategically manipulate the structure of α-Ketoglutaric acid in hopes that a final deprotection will yield the target compound. The attempted production and isolation routes of these experiments will be discussed.

Spokane Arts Sculpture Walk Android Application
Mark Yevdash, Lindsey Corn, Antone Aguiar, Justin Stevenson
Dan Tappan, Computer Science

In downtown Spokane there are many sculptures that most of the visitors to Spokane don’t know about, let alone many of Spokane’s own residents. In order to spread the word about this treasure, we decided to create an Android application that would make all of these sculptures much more accessible. It would also provide information and engage the people of Spokane and visitors in learning about these awesome pieces of art. Our application provides more information about each sculpture and wraps it all in a game-like package. We make the whole learning process a lot more entertaining with our badge-collecting activity. By walking around Riverfront park in the heart of our city, each user will be able to check in at each of the sculptures and collect badges. Once all of the badges are collected, the user can collect a reward, which is a promotion to a place in our city. We feel like this idea of badge collection will be a big motivation for using and loving this application. The main goal is to provide a fun way for residents and visitors to learn about the arts in Spokane.
Our project is a Windows .NET Application that feeds the Computer and Engineering Building monitors a multi-region display of user-chosen content to deliver up-to-date information to the student body. The multiregion display consists of a video/slideshow section, a breaking news section, and a scrolling text section for information on events and updates. The Frontend Application will pull from a Database or localized designated folder when the current information is updated as well as on application start up. A Backend Application will present the user with a GUI to enter or remove their desired content. Users of the Backend Application will login as either a normal user or admin, granting specific controls to each. This content will be pushed to the Database or Directory and the Database will notify the Frontend Application of the new data to be pulled. Residing in the middle is a Socket that will control all communication between the Frontend Application, Backend Application, and the Database. Ultimately, all 3 applications will be installed and run on different computers.
Interactive Abstracts

Dayglass
Tyler Dines
Jonathan Middleton, Music

Dayglass is a digital instrument built within the Max 6 software. The Dayglass patch was created with the intent of seeing if there was a way that Max 6 could develop music over time. It does this by acquiring how many milliseconds have passed since the patch was opened or reset, dividing the total amount of milliseconds into seconds, minutes, hours, and days, and finally feeding that data through a sine function so that it will cycle between the numbers -1 and 1. With these values cycling between -1 and 1, Dayglass then converts these numbers to Hz values to produce a stream of sound with four sources fluctuating pitch at different rates. Completing one full cycle, without any acceleration, takes four days.

Text to Music (T2M)
Tyler Dines
Jonathan Middleton, Music

T2M is a digital instrument that I built from the Max 6 software. This instrument converts alphanumeric characters into pitches based on the harmonic series. The 1st partial is bound to zero, and the 36th partial is bound to Z. To convert these alphanumeric characters into pitches, T2M first selects a number depending on what alphanumeric key is pressed. Once the "Number" function has a number stored, that number, or numbers, is then sent through a "Poly" function when the spacebar is pressed. Other information, such as a pseudo MIDI channel and velocity, is also sent simultaneously to disguise the message as a MIDI message since the "Poly" function only processes MIDI messages. These "Poly" functions then convert numbers, such as 97 from the key A, into frequencies like 110Hz. The function then sustains these frequencies until the period key is pressed. If the frequencies produced from pressing alphanumeric keys followed by spacebar are considered words, and the sum of these frequencies sentences, then T2M is capable of holding words up to 20 characters and sentences up to 20 words.

Tennis Simulation
Darim Yi, Abdulaziz Aljehni, Qureish Hakim, Malick Mbow, Jason Shepherd, Daniel Ruppert, Albert Silva
Saquer Alhloul, Engineering and Design

Our senior capstone is to design a tennis serve simulator for the beginner to intermediate tennis player that is reasonably affordable and accessible for sports facilities and the general population. In addition, we believe we can provide better feedback by having a tennis ball launcher that stores the serving information and recreates it at a later time so that the player can experience their own or another player’s serve anytime. The simulation portion of the system should be possible to implement using free software (openCV) along with cheap hardware solutions.
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