CENTRAL WASHINGTON UNIVERSITY PRESENTS

SOURCE 2019

SYMPOSIUM OF UNIVERSITY RESEARCH AND CREATIVE EXPRESSION

PROGRAM AND PROCEEDINGS

24th ANNUAL CONFERENCE
May 14 Des Moines
MAY 15 & 16 Ellensburg

CELEBRATING EXCELLENCE IN RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITIES
SPONSORED BY

CWU Foundation
Student and Activities Fees
School of Graduate Studies and Research
Office of the President
Office of the Provost
Office of the Associate Provosts
College of Arts and Humanities
College of Business
College of Education and Professional Studies
College of the Sciences
James E. Brooks Library
Student Success
The Wildcat Shop
Wildcat Printing
Enrollment Management
CWU Catering

A SPECIAL THANKS TO OUR COMMUNITY SPONSORS

Alumni Association
Iron Horse Brewery

Proudly sponsored by CWU University Advancement
# Table of Contents

About SOURCE .......................................................................................................................... 4
Student Fashion Show ............................................................................................................. 5
Musical Welcome ..................................................................................................................... 6
Scholarly Showcase .................................................................................................................. 6
Student Union and Recreation Center Map ........................................................................... 12
Program at a Glance ............................................................................................................... 14

Tuesday, May 14, SOURCE at the Des Moines Campus .......................................................... 15
Wednesday, May 15 .................................................................................................................. 16
  Oral Sessions ....................................................................................................................... 16
  Poster Sessions ................................................................................................................... 25
Thursday, May 16 ..................................................................................................................... 31
  Oral Sessions ....................................................................................................................... 31
  Keynote Speaker ................................................................................................................ 36
  Alumni Keynote Speaker .................................................................................................... 41
Acknowledgments .................................................................................................................. 43
Thank You to Our Faculty Mentors ....................................................................................... 44
Scholar and Mentor of the Year Nominees .......................................................................... 45
SOURCE 2019 Awards .......................................................................................................... 45
ABOUT SOURCE

This year, SOURCE celebrates the 24th year of annual multidisciplinary conferences dedicated to student scholarship at Central Washington University.

SOURCE is the longest running student symposium in Washington State.

The goals of SOURCE are to:

Celebrate the depth and diversity of scholarly inquiry and creative expression at Central Washington University.

Offer students a professional forum to sharpen their presentation skills and communicate professional standards.

Promote students’ professional development by providing evaluation and feedback on student presentations in accordance with rigorous professional expectations.

Promote excellence in pedagogy by providing an opportunity for faculty to mentor students through all the steps involved in presenting their work, including creating a research idea, designing and conducting research, and developing and delivering a presentation.

Create a sense of excitement about scholarship and promote life-long learning by encouraging people from within and outside the University to attend students’ presentations and learn about current developments across multiple academic disciplines.

Foster partnerships between higher education, industry, government, and the local community by inviting representatives from diverse fields to participate in evaluating student presentations.

Allow opportunities for further development of mentoring relationships and skills.

Promote a sense of community and inclusivity by encouraging students from all disciplines to participate, and by recognizing that while facilitating students’ professional development is our priority, presentations by faculty and staff are welcome.

Elevate student accomplishment and recognize the excellence of undergraduate and graduate research at Central Washington University.

Recognize works of creative expression as valuable research activities having cultural significance alongside more traditional research.

Promote entrepreneurial spirit by encouraging students to develop and exhibit their business plans.

Educate the University, our city, and the region about the resources and work available at Central Washington University.
FUEGO
FASHION SHOW
FEATURING 16 ORIGINAL STUDENT DESIGNER COLLECTIONS

Saturday June 1st
Milo Smith Theatre
in McConnell Hall

MATINEE
Silent Auction 2pm
Show 3pm

EVENING
Silent Auction 6pm
Show 7pm

TICKETS
Student W/ID $10
General $12
At the Door $12
Advanced purchase recommended

Available at CWU.edu/tickets
The Wildcat Shop or at the door
MUSICAL WELCOME - MAY 15 12-12:30PM - SURC MEZZANINE

With the mentorship of Dr. John Neurohr in the Music Department, the CWU Brass Choir will kick off SOURCE 2019 in the SURC Mezzanine. They will perform Canzon Duodecimi Toni by Giovanni Gabrieli and Concerto Grosso by Arcady Dubensky.

SCHOLARLY SHOWCASE

Interested in research opportunities or support for your research or scholarship at Central? Check out the following tables outside the SURC Ballroom on the 2nd floor and on the 1st floor during SOURCE (in the hallway parallel to the food court—across from US Bank):

- ScholarWorks at Brooks Library
- McNair Scholars Program
- CWU PULSE Magazine
- IJURCA—International Journal of Undergraduate Research & Creative Activities
CWU’s Student Journal of Literature and Art
2019 Issue Launch and Reception

Sara Albin
Oliver Beck
Tyler Bolles
Rachel Brant
Jared Brooks
Kallie Buss
Grace Camp
Leslee Caul
Gwyn Cauldwell
Miranda Cays
Andrew Ciampi
Daniel Craig
Miranda Cummings
Xander Deccio
Kyle Denner
Sifo Dyas
Chloeanne Erickson
Andi Griffin
Audra Gunderson
Aubrey Higdon
Ben Jelinek
Emma Johnson
Natalie Lake
Amy Law
Kacie Little
Kylee Matala
Lauren Matney
Casey Marinkovich
Alicia McAfee
Sean McCabe
Amelia McIntosh
Ante Meridian
Weston Morrow
Ruby Nambo
Kaylee Nelson
Nicholas Newhard
Neve Peters
Michaela Phillips
Brittney Poston
Loren Poulter
Isabel Quinton
Quentin Ragan
Nancy Santos
Corbin Schaefer
Ben Snyder
William Thornton
Xylia Truver
Jade Tunnel
Jessica Vincent
Asya Wilson
Madeline Wilson
Jarret Zeimer
Earn an **Accessibility Studies Certificate** this summer!

CWU’s **Accessibility Studies Program** is focused on recognizing the range of abilities that are common in our population... but the common Barbie doll is an unintentional depiction of disability.

Her unrealistic proportions suggest major functional problems. She would have room for only half a liver and a few inches of intestines! By comparison, the Lammily dolls have the typical proportions of most college-age humans.

The CWU Accessibility Studies Program contributed to the kickstarter for one of the accessories: a wheelchair. We advocate for all people to participate in all public events, without barriers and without stigma.

Join us for **Accessibility Studies**-- a 20-credit online minor that enhances both your personal and your professional development! Take all 4 courses in one summer session or over a year. **Online!**

Contact Dr. Petersen at NJP@cwu.edu

Join us at **SOURCE**, Wednesday, May 15
**SURC 210 1:00PM**

**Come see our students’ innovative capstone projects making every career an accessible career and every public place an inclusive place.**
Multimodal Learning provides opportunities for faculty to share best practices, research, and resources on the use of instructional technologies and innovative pedagogies. In this session, we showcase hybrid technologies, role playing simulations, remote supervision strategies and accessibility tools.

Join us at SOURCE on Wednesday, May 16 at 10-11 in SURC 202
Remember to vote for your favorite SOURCE poster for 2020

Posters to vote on will be placed outside the SURC Ballroom

Poster Session Schedule (SURC Ballroom):
10-11:30a: K-12, Education
12-1:30p: Arts and Humanities, Family and Consumer Sciences, Social Sciences
2-3:30p: Accessibility Studies, Computational Sciences, Health Sciences, Engineering
4-5:30p: Natural Sciences
<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Session Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-2:50p</td>
<td>Room 135</td>
<td>Spotlights Performances</td>
</tr>
<tr>
<td>3-3:50p</td>
<td>Room 137 A/B</td>
<td>Aerospace Studies/Manastash Showcase/Computer Science/Philosophy (1-2:30p)</td>
</tr>
<tr>
<td>4-5:20p</td>
<td>Room 140</td>
<td>Recognition Performances</td>
</tr>
<tr>
<td>5-5:20p</td>
<td>Room 201</td>
<td>MEC Showcase/Faculty Presentations (10-12)</td>
</tr>
<tr>
<td>6-6:20p</td>
<td>Room 202</td>
<td>Keynote</td>
</tr>
<tr>
<td>7-7:20p</td>
<td>Ballroom A</td>
<td>Supreme Court Panel (1-2:30p)</td>
</tr>
</tbody>
</table>

**12-12:30p**
- **SURC Mezzanine**
  - Musical Welcome

**12-12:30p**
- **Room 135**
  - History/Ethnic Studies (2-3:30p)

**1:2p**
- **Room 137 A/B**
  - Aerospace Studies/Manastash Showcase

**2-2:50p**
- **Room 140**
  - Recognition Performances

**3-3:50p**
- **Room 201**
  - Aerospace Studies/Manastash Showcase

**4-5:20p**
- **Room 202**
  - MEC Showcase/Faculty Presentations

**5-5:20p**
- **Ballroom A**
  - Supreme Court Panel

**6-6:20p**
- **Room 201**
  - Keynote

**7-7:20p**
- **Room 202**
  - Supreme Court Panel (1-2:30p)
Tuesday, May 14

SOURCE at the Des Moines Campus
Highline College (Building 2)
5:00 PM – 8:00 PM, featuring keynote speaker Rashad Norris.

Oral Presentations

Khodi Kaviani - Examining the Ancient Iranian Worldview: Lessons Not Learned Yet!

Jennifer Dopps - Exploring the Educational Outcomes of Students who have Experienced Trauma: A Systematic Review
  Mentor: Liane Pereira

Nicole Sam - Honoring Voices and Cultural Norms in Collaborative Research with AI/AN Populations: Ethical Approval vs. Ethical Conduct
  Mentor: Liane Pereira

James Richmond - School District Accessibility for Children with Disabilities and their Immigrant Families
  Mentor: Naomi Petersen

Grace Blum and Eric Hougan - Advancing Systemic Equity in CWU Teacher Education through Community Voice

Chelsea Rivas - The Evacuation of Minor-aged Students with Mobility Impairments in Multistory School Buildings
  Mentor: Naomi Petersen

Nineth Alvarez Lopez - Beginning the Journey with Help of Access Services
  Mentor: Naomi Petersen

Poster Presentations

Travis McCauley - New Technology in Supply Chain
  Mentor: Kun Liao

Brendon Lontz - Amazon Go’s Innovation in E-Commerce and its Impact on the Supply Chain
  Mentor: Kun Liao

Johnny Sithisack - Service Outsourcing from TPL
  Mentor: Kun Liao

Yvonne Burch - Digital Product Supply Chain
  Mentor: Kun Liao

Paula Shull, Undarmaa Gurbazar, Dillon Bruskland, Brian Saucedo, and Anthony Esposo - Raw Materials Receiving Optimization
  Mentor: Lori Erickson

Undarmaa Gurbazar, Leleng Awi, and Nhung Thi Hong - Make-to-order-process in a restaurant setting
  Mentor: Kun Liao

Yen Ly - Missing and Murdered Indigenous Women USA
  Mentor: Trieu Doan

Taylor Parton - Racial and Ethnic Segregation of School Teachers and its Impact on Exclusionary School Discipline
  Mentor: Michael Mulcahy
Wednesday, May 15

Oral Sessions

SURC 135 History Panel: Attitudes Towards Asian Immigrants and Native Americans in U.S. Newspapers and Textbooks

1:00pm – 2:00pm

Speakers: Sukhmann Bajwa, Ava Barabasz, Katherine Shogren

Sukhmann Bajwa – “Asian Invasion”: Social Construction of Chinese and Japanese Immigrants, 1880s-1920s
  Mentor: Marji Morgan

Ava Barabasz – Portrayal of Native Americans in School History Textbooks, 1940 to Present
  Mentor: Marji Morgan

Katherine Shogren – This Land is Their Land: Representation of Native Americans in Children’s Educational Materials From 1931 to Today
  Mentor: Marji Morgan

SURC 140 Primate Behavior/Ecology

1:00pm – 2:00pm

Speakers: Victoria Green (G), Ruth Linsky

Victoria Green (Graduate Student) – Researchers’ Ethical Concerns Regarding Habituating Wild Nonhuman Primates and Perceived Ethical Duties to Their Subjects

Ruth Linsky – Relatedness among Camp Leakey Orangutans, Tanjung Puting, Central Kalimantan
  Mentor: Lori Sheeran
SURC 137 A Psychology

1:00pm - 2:00pm

Speakers: Madeline Wilson, Allison Ford, Tasha Lightning, Patrizia Chirco, Jadvir Gill, Grace Pearsons

Patrizia Chirco - Immigrant or Expatriate? How skin color and country of origin affect social categorization
  Mentor: Mary Radeke
Jadvir Gill - How does abusive supervision hurt employees? The mediating role of positive psychological capital
  Mentor: James Avey
Grace Pearsons, Madeline Wilson and Allison Ford - Shopping While Non-White in Ellensburg, WA
  Mentor: Marte Fallshore
Anistasha Lightning - Examining Locus of Control as it Relates to Recidivism
  Mentor: Danielle Polage

SURC 201 Physics

1:00pm - 2:00pm

Speakers: Brad Hardt, Jeffrey Jensen, Trent English, Jeffrey Sargent, Joshua MacLurg

Jeffrey Jensen - Acquiring First-Order Coherence Measurements for a HeNe Gas Laser Using a Michelson Interferometer
  Mentor: Michael Braunstein
Trent English - Portable Muon Detector
  Mentor: Darci Snowden
Jeffrey Sargent and Brad Hardt - Using High Altitude Balloons to Study the Effects of Ultraviolet Radiation on Bacteria
  Mentor: Darci Snowden
Joshua MacLurg - Thrust Table for Measuring High-Power Model Rocket Engines
  Mentor: Darci Snowden
**SURC 202 English**

1:00pm - 2:00pm

Speakers: Kell Jacobson, Benjamin Jelinek, Michaela Barrett

Kell Jacobson - Unexplored Worlds and Familiar Territories: Subversion and Reinforcement in the Tempest and Other Works  
   Mentor: Barry Shelton

Benjamin Jelinek - Ghosts of the Tortured Past: Foucauldian Themes in “An Eddy on the Floor”  
   Mentor: Barry Shelton

Michaela Barrett - The Companionship and Consumption of Animals; Can They Coexist?  
   Mentor: Michelle O'Brien

**SURC Theater ASP Capstone Panel**

1:00pm - 2:30pm

Speakers: Anna Cairns, Katheryn Clark, Emma Cottle, Laura Evans, Brittney Lautenslager, Meredith Lanthorn, Luca Straka, Ashley VanHorn, Caryn Boehm, Annie Young  
   Mentor for full session: Naomi Petersen

Caryn Boehm - Deafness accommodation in a museum

Anna Cairns - The Experience of living with an adult child with Autism and Mental Illness

Katheryn Clark - "A Missing Piece", a book about the disorder of Agenesis and the Corpus Callosum

Emma Cottle - Lesson Plans to Teach Elementary Students about Accessibility

Laura Evans - School District Classified Staff and Awareness of Disabilities

Brittney Lautenslager - Curriculum for Disability Awareness: Reducing the Stigma of Disability through Education

Meredith Lanthorn - Accessibility at Whiteriver Amphitheatre

Luca Straka - An Expanding Workforce and Promoting Inclusion

Ashley VanHorn - Comparison of Chinese and American Elementary Schools

Annie Young - Accessibility in Alumni Square
SURC Ballroom A Music/Theater

1:00pm - 2:50pm


Ian Monahan, Evan Hagen, Sam Spicer and Sophie Mortensen - Concerts, School Shows, and Commissions: Experiences of a Gigging Quartet
   Mentor: Jeffrey Snedeker
Jaya Swayam and CWU Horn Ensemble - Concert Performance of the CWU Horn Ensemble
   Mentor: Jeffrey Snedeker
Kali Abrams - Live Music in Musical Theatre
   Mentor: Emily Rollie
Jessica Graham - Bring the arts together
   Mentor: Gabrielle McNeillie
Peregrine Spane - How I Organized a Music festival at CWU: Networking, Budgets, Artistry
   Mentor: Mark Samples

SURC 135 History II

2:00pm - 3:20pm

Speakers: Catherine Colwell, Katie Omans, Sara Baumert, Henry Jennings, Isobel Fife, Luke Pearsons

Catherine Colwell - Noble Women in the Time of Catherine the Great
   Mentor: Roxanne Easley
Katie Omans - The Belfast Boycott: Gender, Partition, and Civil War
   Mentor: Jason Knirck
Sara Baumert - Tracing the backlash to women’s independence through sexual assault cases in Yakima County
   Mentor: Roxanne Easley
Henry Jennings - Queer Imagery and Codes of Masculinity in 1980s American Beer Advertising
   Mentor: Geraldine O'Mahony
Isobel Fife - Peter the Great’s Westernization, Freeing Women from Seclusion Since 1682

Luke Pearsons - Bondmania: Spy Films and American Foreign Policy
**SURC 140 Biology**

2:00pm - 3:30pm

Speakers: Amanda Field, Enrique Reyes (G), Silvia Gutierrez, Naomi Bryant, Katherine Boyd, Darby Wedekind, Michael Riley, Jennifer Magana, Trevor May

Enrique Reyes (Graduate Student) - Is fecal matter an appropriate proxy for the intestinal tract in studies of the gut microbiome?
   Mentor: Holly Pinkart

Silvia Guiterrez and Jennifer Magana - Effects of Prenatal Testosterone Exposure on Female Reproduction: Alterations in Ovarian Function
   Mentor: April Binder

Naomi Bryant (Graduate Student) - Endogenous Gene Tagging of pfr2 and pfr5 in Trypanosoma cruzi using CRISPR/Cas9
   Mentor: Gabrielle Stryker

Katherine Boyd and Trevor May - Locating a new gene involved in behavioral adaptation to serotonin in the roundworm C. elegans
   Mentor: Lucinda Carnell

Darby Wedekind and Michael Riley - Development of Procedures for Modifying Variables in the Brewing Process Using Sensory Analysis
   Mentor: Eric Foss

**SURC 137 A Engineering**

2:00pm - 3:00pm

Speakers: Abraham Hutsell, Rowdy Sanford

Abraham Hutsell - Exploring Multimedia Computer Network Systems
   Mentor: Lad Holden

Rowdy Sanford - The Atlas Project
   Mentor: Greg Lyman

**SURC 137 B Education**

2:00pm - 3:00pm

Speakers: Romina Tveten, Sierra Seeman, Lane Wilkinson

Romina Tveten - 10 Portrayals of Men in Movies
   Mentor: Susana Flores

Sierra Seeman - An Analysis of Bias in 10 Children's Books
   Mentor: Susana Flores

Lane Wilkinson - Analysis of Music Educators in the United States
   Mentor: Susana Flores
SURC 201 Physics II

2:00pm - 3:15pm

Speakers: Martin Mattes, Kara Meyer, Jessica Kisner, Eric Kuhta, Kourtney Adkisson

Kara Meyer - Physics of Dance: Lesson Planning
  Mentor: Cassandra Fallscheer
Jessica Kisner - Computational Model of Prion Protein Functions: The good, the bad
  and the ugly
  Mentor: Erin Craig
Eric Kuhta - Bamboo Revolution Acoustic Design Project
  Mentor: Andy Piacsek
Kourtney Adkisson - Comparison of the frequency response of new and old violins
  obtained with a scanning laser Doppler vibrometer
  Mentor: Andy Piacsek
Martin Mattes - Design and Construction of a Cryostat for Low-Temperature Electrical
  Resistivity Measurements
  Mentor: Benjamin White

SURC 202 English II

2:00pm - 3:00pm

Speakers: Taylor Kelly, Grey Caoili, Sammy Miyake, Natalie Melendez, Leslee Caul, W.
  Joey Thornton, Ruby Nambo

Natalie Melendez, Taylor Kelly, Grey Caoilli, and Sammy Miyake - Curriculum
  contributes to cultural competency-a meta analysis of accredited public relations degree
  programs
  Mentor: Emily DuPlessis
Leslee Caul and W. Joey Thornton - Audio Storytelling in the Online Classroom
  Mentor: Lisa Norris
Ruby Nambo (25 minutes) - The Unexpected Pathway
  Mentor: Elizabeth Vidaurri
**SURC 135 History III**

3:30pm - 4:30pm

Speakers: Margaret Arnett, Dane Gillin, Jordan Hughes, David Page

Dane Gillin - Grand Coulee Dam: An Economic Powerhouse  
Mentor: Marji Morgan

Jordan Hughes - That Dam Newsletter: Print Media’s Influence on Safety Habits at the Grand Coulee Dam  
Mentor: Marji Morgan

Margaret Arnett - To Build or Not to Build: A History of Building Codes and the Central Washington University Campus 1893-1986  
Mentor: Marji Morgan

David Page - How Prohibition Changed Alcohol Advertising  
Mentor: Marji Morgan

---

**SURC 140 Biology II**

3:30pm - 5:00pm

Speakers: Bikesh Shrestha, Kenya Byrnes, Cortnea Austin, Savannah Fields, Thomas McIntyre, Jessica Luna

Bikesh Shrestha - Effects of Dihydrotestosterone on Mouse Gut Microbiome – A Study of Sex Differences and Hormonal Effects on Gut Microbiome  
Mentor: Holly Pinkart

Kenya Byrnes - Woodpecker Paradise: Territory Size of Melanerpes chrysogenys in Western Mexico  
Mentor: Daniel Beck

Cortnea Austin - Mapping Trail Networks of Turtle Ants in a Tropical Dry Forest of Western Mexico  
Mentor: Daniel Beck

Savannah Fields - Thermal characteristics of two lizard microhabitats after Hurricane Patricia in the Estación de Biología Chamela (UNAM), Mexico  
Mentor: Maru Gonzales

Thomas McIntyre - Are Highways Stressful for Pikas? Analysis of Stress Hormones of Ochotona princeps Living Adjacent to Interstate 90  
Mentor: Kristina Ernest
**SURC 137 A Accessibility Studies**

3:30pm - 5:00pm

Speakers: Kaily Beaulaurier, Chelsea Rivas, Kenny Dalton, Alex Cheesman, Han Jiang, Michael Riggin

Kaily Beaulaurier - International Disabled Adoptees Path to Higher Education  
   Mentor: Griff Tester
Chelsea Rivas - The Evacuation of Minor-aged Students with Mobility Impairments in Multistory School Buildings  
   Mentor: Naomi Petersen
Kenny Dalton - How to Look Disabled Enough: An Exploration of Stigma and Invisible Disabilities  
   Mentor: Naomi Petersen
Alex Cheesman - Identifying Roadblocks to the Hiring of People with Exceptionalities  
   Mentor: Naomi Petersen
Han Jiang - Accessible Design on Mobile Apps for Elders  
   Mentor: Naomi Petersen
Michael Riggin - Finding Employment Accessibility for People with Intellectual Disabilities  
   Mentor: Naomi Petersen

**SURC 201 Chemistry/Physics**

3:30pm - 5:00pm

Speakers: Cheyenne Suarez, Audrey Vulcano, Sean Dawson, Rosa Moreno Leon, Antonio Moreno, Mohamed Nawwar, Alexander Mantilla

Mohamed Nawwar - Effect of lanthanum and cerium substitution on the superconducting state of Ba0.6K0.4BiO3  
   Mentor: Benjamin White
Alexander Mantilla - Investigating the Thermodynamic and Magnetic Properties of the Systems Ca3Co2- xMnxO6 and Ca3Co2-yZnyO6  
   Mentor: Benjamin White
Sean Dawson, Cheyenne Suarez and Audrey Vulcano - Towards the Synthesis of Novel 1,3-Azaborines as Potential HIV-1 Protease Inhibitors  
   Mentor: Levente Fabry-Asztalos
Rosa Moreno Leon - Identification of Proteins that interact with QuakingI-6  
   Mentor: Todd Kroll
Antonio Moreno - Intramolecular hydroalkylation of in situ-generated bis-homoallylic chiral piperazinonates  
   Mentor: Timothy Beng
SURC Theater Manashtash 2019 Reading and Launch Party 3:30pm - 5:00pm

Speakers: Casey Marinkovich, Haley Bush
Mentor: Zach VandeZande

Manastash Literary Magazine presents its 2019 issue through a reading and reception for our 2019 authors and artists. The 2019 issue features fiction, poetry, nonfiction, hybrid writing, graphic narratives, and visual art from CWU’s student body. We are excited to celebrate the artistic achievements of our Wildcats. This event will also serve as the launch party for the 2019 issue; free copies will be made available to all attendees and readers. Join us in supporting CWU’s literary magazine for Wildcats, by Wildcats.

SURC Ballroom A Art/Dance/Film and Video
3:30pm - 5:00pm

Speakers: Makayla Miracle, Katelyn Stewart, Tyler Lovie, Nikole Chumley, Bailey Erwin, Jocelyn Waite, Libby Akin

Libby Akin - Exploring Online Art: YouTube
  Mentor: Tina Barrigan
Katelyn Stewart - Art as a Collective: Common Ground
  Mentor: Gabrielle McNeillie
Tyler Lovie and Bailey Erwin - Dancing Around a Memory
  Mentor: Therese Young
Nikole Chumley and Jocelyn Waite - Lights, Camera, Representation
  Mentor: Melissa Johnson
Makayla Miracle - Ideate
  Mentor: Howard Barlow

SURC 135 History IV
4:30pm - 5:30pm
Speakers: Ava Barabasz, Adam Robertson, Victoria McMullen, Rebecca Penner

Adam Robertson - “Some other soldiers will watch us”: A Private’s Perspective of the Chattanooga Campaign, Sep. 20 - Nov. 25, 1863
  Mentor: Daniel Herman
Ava Barabasz - A Comparison of Patriotism: A Reflection of a Union Soldier's Memoir
  Mentor: Daniel Herman
Victoria McMullen - Discovering Invisible Wounds: Discovering and Comparing PTSD in Civil War Veterans and Vietnam Veterans
  Mentor: Daniel Herman
Rebecca Penner - Diego Rivera’s U.S. Experiment and Controversy
  Mentor: Jason Knirck
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poster Session 1 10:00am – 11:30am</td>
<td></td>
</tr>
<tr>
<td>SURC Ballroom B/C/D</td>
<td></td>
</tr>
<tr>
<td>CEPS Education</td>
<td></td>
</tr>
<tr>
<td>Margaret Arnett - Teaching the Japanese Internment in Public High</td>
<td>Jazmyn Bragg - Bias Within Modern Programs</td>
</tr>
<tr>
<td>School History</td>
<td></td>
</tr>
<tr>
<td>Bethany Carbonetti - An analysis of bias in 10 elementary</td>
<td>Craig Chapo - An Analysis of Religious Bias in the Public School</td>
</tr>
<tr>
<td>education instructional materials</td>
<td>Setting</td>
</tr>
<tr>
<td>Rachel Cristiansen - An Analysis Across 10 Children's Books and</td>
<td>Christine Cowin - Analysis of gender bias in children's films</td>
</tr>
<tr>
<td>Their Representation of Diversity</td>
<td></td>
</tr>
<tr>
<td>Rayven Crawford - An analysis of race in 10 episodes of &quot;Blackish&quot;</td>
<td></td>
</tr>
<tr>
<td>Carly Davis - How Racism appears in Children's Books</td>
<td></td>
</tr>
<tr>
<td>Chris Deibel - An analysis of race in 10 episodes of &quot;Blackish&quot;</td>
<td></td>
</tr>
<tr>
<td>Jenna Downing - Body Image in Children's Literature</td>
<td></td>
</tr>
<tr>
<td>Kalen Dunlap - Analysis of biases in Physical Education</td>
<td></td>
</tr>
<tr>
<td>Duncan Eastman - An Analysis of Minority Roles in Musical Theatre</td>
<td></td>
</tr>
<tr>
<td>Gregory Eggleston - The study of Composers with Diverse Backgrounds</td>
<td></td>
</tr>
<tr>
<td>and Experiences</td>
<td></td>
</tr>
<tr>
<td>Chelsey Farias - An analysis of gender in 10 family and consumer</td>
<td></td>
</tr>
<tr>
<td>science books in the high school classroom</td>
<td></td>
</tr>
<tr>
<td>McKenna Flanagan - Diversity In Children's Books</td>
<td></td>
</tr>
<tr>
<td>Melissa Fournier - An Analysis of Bias in 15 of the ALA's Frequently</td>
<td></td>
</tr>
<tr>
<td>Challenged Children's Books</td>
<td></td>
</tr>
<tr>
<td>Sydney Galbreath and Maria Kogan - Using Video Analysis Tools to</td>
<td>Cole Gloor - Why Do Electric Eels Strike? A Case Study for Modeling</td>
</tr>
<tr>
<td>Explain Energy Concepts</td>
<td>Electric Fields in Introductory Physics</td>
</tr>
<tr>
<td>Kehla Grow - An analysis of female composers in the United States</td>
<td></td>
</tr>
<tr>
<td>Gese Gruber - An analysis of bias in 10 children picture books</td>
<td></td>
</tr>
<tr>
<td>Ariel Haustveit - Gender Bias in English/Language Arts Works of</td>
<td></td>
</tr>
<tr>
<td>Fiction Authors</td>
<td></td>
</tr>
<tr>
<td>Natasha Henley - An analysis of 10 PE and School health</td>
<td>Weston Heuker - Gender Bias in Career Technology Education</td>
</tr>
<tr>
<td>instructional methods</td>
<td></td>
</tr>
<tr>
<td>mikkalah Irish - Analysis of Bias in Ten Educational Technology</td>
<td></td>
</tr>
<tr>
<td>Tutorials</td>
<td></td>
</tr>
<tr>
<td>Payton Kelly - Community Engagement at Central Washington University:</td>
<td></td>
</tr>
<tr>
<td>Expanding STEM Knowledge and Awareness Across all Learning Levels</td>
<td></td>
</tr>
<tr>
<td>Cecilia Lakin - An analysis of bias in 10 elementary education</td>
<td></td>
</tr>
<tr>
<td>instructional materials</td>
<td></td>
</tr>
<tr>
<td>Sunny Lee - An analysis of male elementary school teachers in the</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Brady Lewallen - Analysis of Biases in Physical Education</td>
<td></td>
</tr>
<tr>
<td>Brynne Loiseau - Teaching Discrimination Outside of the Southern</td>
<td></td>
</tr>
<tr>
<td>Context</td>
<td></td>
</tr>
<tr>
<td>Lexi Magistrale - An analysis of gender bias in 10 music education</td>
<td></td>
</tr>
<tr>
<td>classroom posters</td>
<td></td>
</tr>
<tr>
<td>Hailey McCabe - A historical analysis of representation of disabilities in 10 children's picture books</td>
<td></td>
</tr>
<tr>
<td>Griffin McCabe - An Analysis of Race and Culture in 10 Episodes of &quot;Fresh Off The Boat&quot;</td>
<td></td>
</tr>
<tr>
<td>Mireya Mendoza - An analysis of bias in immigration in ten popular films</td>
<td></td>
</tr>
<tr>
<td>Matt Mihara - An Analysis of gender bias in physical education</td>
<td></td>
</tr>
<tr>
<td>Kyla Morgan - An analysis of bias in 10 elementary education</td>
<td></td>
</tr>
<tr>
<td>instructional materials</td>
<td></td>
</tr>
<tr>
<td>Elyse Morrow - An analysis of character diversity in relation to the author's racial identity in ten children's books</td>
<td></td>
</tr>
<tr>
<td>Harrison Orkney - An analysis of race in the film &quot;Get Out&quot; by Jordan Peele</td>
<td></td>
</tr>
<tr>
<td>Amy Osterhage - An analysis of gender bias in 10 books read in</td>
<td></td>
</tr>
<tr>
<td>middle level language arts</td>
<td></td>
</tr>
<tr>
<td>Jillian Payton - An analysis of bias in 10 children's picture books</td>
<td></td>
</tr>
<tr>
<td>Chloe Pierce - An Analysis of Ten Female Jazz Musicians in the United States</td>
<td></td>
</tr>
<tr>
<td>Mikaela Rink - Analyzing Bias in Instructional Materials in the</td>
<td></td>
</tr>
<tr>
<td>Music Classroom</td>
<td></td>
</tr>
<tr>
<td>Zach Torrance-Smith - An analysis of bias in ten secondary education instructional materials</td>
<td></td>
</tr>
<tr>
<td>Mya Wagner - An analysis of female composers and Composers of Color in the United States</td>
<td></td>
</tr>
<tr>
<td>Elizabeth Watkins - An Analysis of Non-traditional Families in 10 Children Books</td>
<td></td>
</tr>
<tr>
<td>Aubrey Weber - An Analysis of Bias in Immigration in Ten Popular</td>
<td></td>
</tr>
<tr>
<td>Films</td>
<td></td>
</tr>
<tr>
<td>Nels Winn - An Analysis of Gender Bias in 10 Different Sports</td>
<td></td>
</tr>
<tr>
<td>Nick Yerton - Analyzing Biases in Educational Media</td>
<td></td>
</tr>
<tr>
<td>Jake Zwaller - An Analysis of bias in 10 Children books</td>
<td></td>
</tr>
</tbody>
</table>
K-12
Nicholas Gleed, Alice Miller, Rowan Utzinger, and Reese Braman - Beaver Activity and Habitat in the Reecer Creek Floodplain Restoration Project, Ellensburg, WA
Christopher Galvan, Daisy Barajas, Fernando Pazaran, Richie Torres, Aylar Elias, Michelle Miranda, and Osvaldo Alvarez - Studying the Effects of Adding LWD to Indian Creek, a Second Order Stream
Dominic Singh, Apollo Hashimoto, and Benjamin Lombardi - Fish Abundance in Reecer Creek Floodplain Restoration Project, Ellensburg, WA
Annika Repsher and Heidi Seemiller - Macroinvertebrates Survey of the Reecer Creek Floodplain Restoration Area 2018
Branden Wise - Water Quality in Yakima River Tributaries in Ellensburg, WA, 2018
Lainie Johnston, Annelise Schmidt, and Austin Ragdale - How do front planks vs. long lever posterior pelvic tilt planks affect rectus abdominus excitation as measured by EMG activity?
Tyler Brockie, Tyler Wisen, and Roberto Torres Olmedo - How do Squats vs. Lunges affect the Gluteus Maximus excitation
Avery Nguyen - How does Leg Press vs. Lunges affect Quadriceps excitation as measured by EMG activity?
Farace Nassar, Tye Williams, and Ean Howard - How do standing calf raises vs. seated calf raises affect muscle excitation as measured by EMG activity?
Gavin Woodring, Trey Stegeman, and Skyler Walton - How do hammer curls vs. bicep curls affect the bicep brachii excitation as measured by EMG activity?
Joana Gonzalez Sanchez, Karla Membreno Magana, and Natalia Suarez - How does cross body hammer curls vs. reverse grip barbell curls affect the biceps brachii excitation as measured by EMG activity?
Madyson Peters and Darius Carlson Walker - How do resting wrist curls vs. wrist pulls affect wrist extensors excitation as measured by EMG activity?
Noel Vazquez Reyes and Mariana Sanchez Leon - Does one arm Light weight vs. Hammer curl Heavy weight have more benefits?

Poster Session 2 12:00pm – 1:30pm
CAH Arts and Humanities
Mikayla Black - An Analysis of Female Conductors in the United States
Olivia Bode - An Examination of Russian Orthodox Iconography
Christine Dunlap - The Hidden Self
Meri Lombera, Tamaki Murata, Liza Conboy and Jonathan Dikerson Duncan - Saliens: Relationship Simulation Game
Jessica McCready - An analysis of female conductors in the 20th century
Shohei Takayama - Boarding School

Family and Consumer Sciences
Lindsey Abad - Saudade
Alexandria Arroyo Long - Sibling Trauma in Childhood: Attachment and Later Perceptions of Parenting Quality
Mackenzie Bryson (Graduate Student) - The Moderating Role of Grit in The Relationship Between ACEs and Self-Esteem
Chelsie Cameron - Becoming
Kylee Castonguay - Atlianna
Sydney Cowley - Frayd
Taylor Dean, Ashley Arriaga and Jazmin Quinones - Generational Status as a Moderator in the Relation Between Self-Esteem and Academic Outcomes Among College Students
Tavares DeLeon - Honey Lavender
Paige Fogg - Lovesome
Kathelyn Fox - Bombshell
Adriana Guijarro, Aubriana Jimenez, Margaret Dice, Zachary Marr, and Carly Quirk - Perceived Parental Support and Academic Success
Sean Helligso - Reign: Supreme
Carissa Hills - Celestitial
Julia Jacobs - Juicy Jash
Angela Kull - Wildest Dreams
Kristy Mauricio - Elegancia Moderna
Victoria Nikolaus - Sustainability Brats
Triona Noss - Perfect Harmony/The Juliette
Abigail Obernberger - Periwinkle Perfect
Annika Oren - Sweetest Sin
Shannon Reilly - You've Got a Friend in Me: The Relationship Between Mental Health and Quality of Peer Support
Christina Sanchez - The Association Between Adverse Childhood Experiences and Parent-Child Relationship Quality Among Emerging Adults

Social Sciences

Zach Allen - Magnetic Analyses to Address Function and Burn/Use History of Non-Feature Burned Rock
Jackey Anderson - Tekison Cave (45KT215) Sample Faunal Analysis
Alan Bergman - The zoo visitor experience and its connection to behavior in western lowland gorillas (Gorilla gorilla gorilla)
Kendra Blanchard and Katelyn Madsen Wambold - Beyond the Golden Rule: How Social Skills Training Programs Impact Children’s Social Interactions
Nicholas Browitt (Graduate Student) - Facial Expressions and Social Perceptions
Viktoriya Broyan, Tyler Ussery and Ryan Woody - The Power of Music on Implicit Racial Bias and Neural Activity
Alexanna Burge - The Masculinity of Donald Gaskins: A Phenomenological Interpretation
Victoria Capell, Kaitlin Crook and Nik Harkins - Testing 3D Scanning & Printing for Making Reference Bone Specimens from Faunal Remains
Sofia Castro-Loza - Ethnoprimatology of Urban Cebus albifrons: An evaluation of human-nonhuman interactions and local perceptions in Misahualli, Ecu
LeAnna Chard - Just Listen: A visual Representation of Inner Suffering
Patrizia Chirco - Video Games That Change the Game: The Use of Video Games to Influence Attitudes Toward Immigrants
Grace Coffman, Kailie Dombrausky, Emily Patton and E. Chadwick de Bree (all Graduate Students) - Chimpanzees Modulate Signs Emphatically
Elizabeth Coggeshall (Graduate Student) - The role of social interaction and nearest neighbor preferences in juvenile Alouatta palliata social development
Mailelei Faletogo - Habitat for Humanity’s Effects in Homelessness and Poverty in Women
Adam Fruge (Graduate Student) - Preliminary Analysis Results: Sampling Fishes from 1976 Excavations at the Sam Israel House Pit (45GR76) near Soap Lake, WA
Victoria Green (Graduate Student), Jodi Roush, Bailey Haines, Nicole Douglas and Emma Olson - Primatologists’ Views on Researcher Neutrality and Their Reasons for Entering the Field of Primatology
Benjamin Hansen and Annie Zimmerman - Your future regrets: How losing out on love and money might not be as bad as you imagine
Kayla-Ann Hemmings - Can video presentations and music alter perception of marine animals and aquatic conservation?
Kristen Jones, Miranda Stowell, Bianca Lopez, and Courtney Deveny - Undergraduate Perceptions of Graduate School in Psychology
Azalea Koestler - Supplemental Meditation
Kalli Kohnen - The activity budgets of captive Javan gibbons and their response to visitor presence or absence
Anna Kriuchkova - Specifics of Amateur Audiovisual Translation in a Context of Russian-speaking Fansub Communities
Meri Lombera, Holly Leaper, and Spencer Barker - Tinder and Social Comparison: The Effects of Profile Gender, Ethnicity, and Perceived Attractiveness
Grayson Long and Jadvir Gill - Understanding nudge interventions
Jennifer Lund - Depictions of Genetic Research in Film Across Genres
Johnnise Moore - The experience of racial microaggressions on CWU’s campus
Elijah Mulu and Larissa Escamilla-Ocanas - To stream or not to stream: How watching others play video games influences intentions and attitudes
Hannah Oliver, Adam Westermann, and Nicole Moss - CWU Policy and Justice?
Taylor Parton - Racial and Ethnic Segregation of School Teachers and its Impact on Exclusionary School Discipline
Connor Ridgeway - Becoming a Firefighter
Edith Saavedra - A Latina's Endeavor
Alexandra Sacco (Graduate Student) - A non-invasive measure of immune status: Validation of an assessment of urinary neopterin in New World Monkeys
Bayan Saied and Gerald Lemmon - Zero Tolerance Policies towards Gender-Based Abuse and Violence: Linking Gender Equality to Sustainable Development
Joseph Thomas - The Price of a Ghost Coin: Bitcoin's price behavior using agent-based modeling
Sydney Weinreich (Graduate Student) - Teaching Social Thinking: The Perceived Effectiveness and Likeness of Social Thinking Programs
Sydney Wirkkala (Graduate Student) - Self-Evaluations and Judgments of Others

Accessibility Studies
Han Jiang - Accessible Design on Mobile Apps for Elders
Kayla Nancarrow - Beginning the Journey: Special Education Transitioning in Kittitas County
Jazmin Quinones - Accessibility in Rotary Parks

Computational Sciences
Vaughan Gilmore - Assessing the Accuracy of Military Values Reported in Herodotus' Histories using Benford's Law
Leni Halaapiapi - A Chaotic Implementation of Two Meta-Heuristic Algorithms
Juan Mendoza - Dynamics of Academic Affiliations
Allyah Pana - Is There a Difference Between How Players are Valued in Traditional Statistics Versus Advanced Metrics?

Health Sciences
Clare Bawden, Sheila Berry, and Katelyn Harrigan - The Effects of Using Tree Top Pear Flake Powder to Reduce Added Sugar on the Eating Quality of a Gluten-Free Brownie
Christi Dix, Maddie Scott, and Michelle Smyth - The Effects of Adding Bacillus Subtilis Probiotics to Milk Chocolate Bars
David Farr and Tyler Mcclure - The Hands-On Mind: Promoting Learning through Human Cadaver Dissection
Zella Hanson - Comparative Analysis of Recreationally Active Individuals against Sports Nutrition Recommendations
Nicholas Lemke - Effects of Farmers Market Education with Supplemental Farmers Market Voucher on Elementary Grade Students
Katherine St. John (Graduate Student) - Diet Quality Inversely Associated With Depression: NHanes 2011-2014
Jess Tyrrell - Effectiveness of Nutrition Education and Fitness Tracking in a Large Corporate Healthcare Wellness Program
Alina Wang - Washington State Lung Cancer Incidence Rates: Why We Need to Keep Them in Check

Engineering – Constructed Objects
Kyle Aitken - R/C Mini Baja: Drivetrain
Ali Almarri - Auto pill dispenser
Margaret Bahr - Solar Phone Charger
Christian Barrett - A More Ergonomic Ultrasound Probe
Joseph Bui - UV Sensor Control of LCD Shaded Filter
Christopher Clark - Electrathon Vehicle: Front Suspension
Alexander Edwards - Composite Recycler: Fiber Re-claimer
Michael Funk - Prosthetic Hand: Articulation
Brad Hardt - Robotics Automation Through Sensors - The HX Manipulator
Tolu Halaapiapi - Electrathon Vehicle: Steering
Luis Hernandez - Electrathon Vehicle: Drive Train
Samuel Johnson - Electrathon Vehicle: Electrical Power
Brad Lewis - Building a Crane
Sheynia Martin - R/C car suspension, frame and steering mechanism
James McPherson - Stair Climbing Hand-Truck
Nathan Moore - Weather Station Redesign
Duncan Njunge - Laboratory Water Distiller project
Alfonso Olivera - Composite Recycler: Frame
Luis Perez - MET Medallions
Rosa Perez - Composite Recycling: Feed Control
Nathan Sauer - Composite Delamination
Ryan Shiner - Electrathon Vehicle: Body
Ryan Skerbeck - Onboard Air Compressor Mounting Bracket
Riley Smith - Prosthetic Hand Structure
Alazone Smith - Dual-Axis Solar Tracker
Chandler Streuli - Custom Foot Prosthetic: Diabetic Care
Denis Vlasenko - Designing a Circuit to Measure Distance with a Laser for a Handheld 3D Scanner
Tyce Vu - Automatic Hydraulic Vehicle Jack - Auto Jack: Hydraulics
Joseph Watt - Kikodot Cat Prosthetic

Poster Session 4 4:00pm – 5:30pm

Natural Sciences
Hyoeun Ahn - The Effects of Progesterone and Estradiol Mixture on MCF-7 Human Breast Cancer Cells
Josh Allen, Nik Harkins and Jackey Anderson - Pre-contact use of Mesa Landforms on the Columbia Plateau: Results from Aggregate Lithic Analysis
Zach Allen, Kathleen Hawes, Adam Fruge (Graduate Student), Joshua Henderson and Corey Dyer - Tacoma Link Expansion Project: A Geoarchaeological Analysis
Savannah Bommarito (Graduate Student) - Identifying the effects of land use change on disturbance regimes in the Teanaway Community Forest, Washington
Susana Camacho Plascencia - Testing Three-Way Protein Interactions
Spencer Canada - A preliminary analysis of trunk evolution in oreodonts (Superfamily Merycoidodontoidea, Order Cetartiodactyla)
Daniel Chavez (Graduate Student) and Kaylee Troth - Effect of Iron on the Oxidative Capacity of Carbonaceous Nanoparticles
Meng Yang Chen - The Air Quality Improvement in the Greater Taipei area, Taiwan
Aidan Chissus - The effect of environmental stress on genetically unique strains of sunflower (Helianthus annus)
Calvin Cook - Method Development for the Electrochemical Characterization of Black Carbon Nano-Particles
Linsey Curry and Taylor Henne - Synthesized organic compounds show leishmanicidal in vitro activity against the infectious agent Leishmania major
Mohannad Dahlawi - Past and Present Developments along Jeddah’s Red Sea Coast
Alexia Davila and Jacqueline Flaherty - Investigating the Use of Brewers Yeast in Bread
Evan Davis-Brier and Jared Vanlaethem - Patterns of survival of Cardón Cacti in a Tropical Dry Forest after Hurricane Patricia in Western Mexico
Nicholas DeHollander and Zack Iverson - Impact of Hurricane Patricia on Spring Temperature in a Tropical Deciduous Forest in Mexico
Kaitlyn Dykstra - Dose and time-dependent toxicity of a common plasticizer to mouse liver cells
Nicole Enger - Investigating the Dynamics of a Multi-protein Complex Involving Emx2
Sydney Galbreath and Scout Wesselman - Mgm1 Interactions
Jorge Garcia - Intramolecular Benzylic sp3 C-H Oxy-functionalization of Lactam-bearing Alkanoic Acids
Electric Fields In Introductory Physics
Noah Gorski - Generating Polyclonal Antibodies to the Paraflagellar Rod 5 Protein in Trypanosoma cruzi to Determine Subcellular Location
Kenlei Gunther and Kendra Laidlaw-Mays - Assessment of anti-Leishmania properties of organic molecules for the treatment of leishmaniasis
Kathleen Hawes (Graduate Student) - At The Root of the Matter: Basketry Construction Materials from the 2,000-year-old Biderbost Archaeological Wet Site (45SN100)
Mason Heath - Single-Cell Microfluidics
Mackenzie Hughes (Graduate Student), Dennis Wilson, Nik Harkins, and Mallory Tripplett (Graduate Student) - Preliminary Analysis of a Non-Professionally Assembled Lithic Collection Using Morphological Classification
Trevor Johnson - Quantitative Analysis of Dissolved Carbon Flux in Pacific Northwest Agricultural Soils
Naomi Kaku and Megan Woods - Do Leaf Characteristics Confer Drought Resistance in Sunflowers?
Grace Keller – Relationships between soil bacteria and agricultural nutrient amendments
Eric Kuhta and Jessica Kisner – Elks Ballroom Acoustic Study
Julia Kunas (Graduate Student) - A Functional Analysis of Pre-Contact Archaeology and Site Microenvironments on Lopez Island, Washington
Orionna Lightning - Observing the magnitude and eclipse periods of the star systems TZ Lyra and W Ursa Major
Jamie Liljegren - Suction Dredge Mining Impacts on Pacific Lamprey Populations and Habitat in Washington State: A Case Study of the Entiat River
Jennifer Magana and Silvia Gutierrez- The Phenotypic Effects of Dihydrotestosterone in the Development of Polycystic Ovarian Syndrome in a Post-natal Mouse Model
Martin Mattes - Correcting Phase in a Bell’s Inequality Measurement
Heather McKinon and David Farr - Analysis of Genomic and Epigenomic Divergence Associated with a Defensive Trait in Yellow Monkeyflower
Nicole McPhee and Lisa Stingley - Calibration of Mastersizer 3000 for Sediment Analysis
Jessica Morris (Graduate Student)- Rock Imagery Viewshed Results: The Central Washington Cultural Landscape
Caleb Mortensen and Trace Hislop - Information retention and chemical demonstrations
Ashleen Reddy (Graduate Student) - Effect of Carbonaceous Nanoparticles on the Oxalate Mediated Reduction of Ferrhydrite
Ivianne Redman and Rachel Davey - Sustainable Synthesis of Large, Nitrogen-Containing Cyclic Compounds Robert Ring - Nitrate Isotope Analysis Using Isotope Ratio Mass Spectrometry
Amanda Ringer and Baeleigh Berry - Landscape Evolution of Antartica
Natalie Robinette, Rowan Thomas, Olivia Dearing and Roy Cruz- Soil Respiration and Radish Growth in Compost and Autoclaved Soil
Morgan Rodriguez - Modular Regio-, Chemo-, and Stereoselective Access to trans-[n,6]-Fused Lactam-Halolactones
Griffin Running - Runaway Stars as a Possible Source of Elliptical Ring Structure in NGC 7538
Macy Schmidt, Sara Shellenberger and Gretta Hoke - Behavioral Analysis of the White-Nosed Tejones in the Tropical Dry Forest: Chamelea, Mexico
Lindsay Schulz (Graduate Student) - Evaluation of How Land Use Effects Water Quality in Kittitas County, WA
Meagan Smith - Progress Toward the Synthesis of Bicyclic Diamines by Intramolecular Amino-functionalization of Lactam-bearing Vinylogous Amines
Jesse Squibb - Anthropogenic Influence on Falco sparvarius Populations within Washington State
Allison Staten and Noelle Scofield - The influence of water management on stream biofilm and nutrient limitation in the Yakima Basin
Mackenzie Stinson, Jazmin Gonzalez, Angelica Bustos-Ortiz, and Carla Barbosa - Patterns of Epiphyte Occurrence in a Mexican Tropical Deciduous Forest after Hurricane Patricia
Lauren Taracka, Emma Houghton, Max Taylor, Mich Thomas, and Tristan Lashua - Lizard Occurrence and Ectoparasite Load in a Mexican Tropical Dry Forest
Mallory Tripplett (Graduate Student) - Culture and Environmental Resource Management
Brett Vagt and Sarah Sanders - Discovery of Novel Boronates; Structural Building Blocks of Potential Enzyme Inhibitors
Xiangyu Wen - Improved Recycling Labeling on Campus
Anjanette Wilson - Setting the Stage for Connectivity Assessments: Small Mammals in Forest Habitats as Potential Users of Wildlife Crossing Structure
Drew Wilson - Testing the Effects of Elderberry Extract on Macrophage Function
Anna Winnett, Alexia Davila, Nick Lemke - Investigating Effects of Iron Fortification of Snickerdoodle Cookie Crisps on Texture and Flavor Qualities
Poster Session Mentors

CEPS Education
Margaret Arnett – Mentor: Susana Flores
Jazmyn Bragg – Mentor: Susana Flores
Bethany Carbonetti – Mentor: Susana Flores
Craig Chapo – Mentor: Susana Flores
Rachel Christiansen – Mentor: Susana Flores
Christin Cowin – Mentor: Susana Flores
Rayven Crawford – Mentor: Susana Flores
Carly Davis – Mentor: Susana Flores
Chris Deibel – Mentor: Susana Flores
Jenna Downing – Mentor: Susana Flores
Kalen Dunlap – Mentor: Susana Flores
Duncan Eastman – Mentor: Susana Flores
Gregory Eggleston – Mentor: Susana Flores
Chelsey Farias – Mentor: Susana Flores
McKenna Flanagan – Mentor: Susana Flores
Melissa Fournier – Mentor: Susana Flores
Sydney Galbreath and Maria Kogan – Mentor: Erin Craig and Derek Ricketson
Cecilia Lakin – Mentor: Susana Flores
Kyla Morgan – Mentor: Susana Flores
Elyse Morrow – Mentor: Susana Flores
Harrison Orkney – Mentor: Susana Flores
Amy Osterhage – Mentor: Susana Flores
Jillian Payton – Mentor: Susana Flores
Chloe Pierce – Mentor: Susana Flores
Mikaela Rink – Mentor: Susana Flores
Zach Torrance-Smith – Mentor: Susana Flores
Mya Wagner – Mentor: Susana Flores
Elizabeth Watkins – Mentor: Susana Flores
Aubrey Weber – Mentor: Susana Flores
Nels Winn – Mentor: Susana Flores
Nick Yerton – Mentor: Susana Flores
Jake Zwaller – Mentor: Susana Flores

**Arts and Humanities**
Mikayla Black – Mentor: Susana Flores
Olivia Bode – Mentor: Roxanne Easley
Christine Dunlap – Mentor: Maya Chachava
Meri Lombera, Tamaki Murata, Liza Conboy and Jonathan Dikerson Duncan – Mentor: Joshua Nelson-Ichido
Jessica McCready – Mentor: Susana Flores
Shohei Takayama – Mentor:

**Family and Consumer Sciences**
Lindsey Abad – Mentor: Andrea Eklund
Alexandria Arroyo Long – Mentor: Amy Claridge
Mackenzie Bryson – Mentor: Amy Claridge
Chelsie Cameron – Mentor: Andrea Eklund
Kylee Castonguay – Mentor: Andrea Eklund
Sydney Cowley – Mentor: Andrea Eklund
Taylor Dean, Ashley Arriaga and Jazmin Quinones – Mentor: Sarah Feeney
Tavares DeLeon – Mentor: Andrea Eklund
Paige Foggin – Mentor: Andrea Eklund
Kathelyn Fox – Mentor: Andrea Eklund
Adriana Guijarro, Aubriana Jimenez, Margaret Dice, Zachary Marr and Carly Quirk – Mentor: Deidra Kelly
Sean Helligso – Mentor: Andrea Eklund
Carissa Hills – Mentor: Andrea Eklund
Julia Jacobs – Mentor: Andrea Eklund
Angela Kull – Mentor: Andrea Eklund
Kristy Mauricio – Mentor: Andrea Eklund
Victoria Nikolaus – Mentor: Andrea Eklund
Triona Noss – Mentor: Andrea Eklund
Abigail Obernberger – Mentor: Andrea Eklund
Shannon Reilly – Mentor: Deidra Kelly
Christina Sanchez – Mentor: Amy Claridge

**Social Sciences**
Zach Allen – Mentor: Steven Hackenberger
Jackey Anderson – Mentor: Patrick Lubinski
Alan Bergman – Mentor: Kara Gabriel
Kendra Blanchard and Katelyn Madsen Wambold – Mentor: Heidi Perez
Nicholas Browitt – Mentor: Mary Radeke
Viktoriya Broyan, Tyler Ussery and Ryan Woody – Mentor: Ralf Greenwald
Alexanna Burge – Mentor: Roger Schaefer
Victoria Capell, Kaitlin Crook and Nik Harkins – Mentor: Patrick Lubinski
Sofia Castro-Loza – Mentor: Jessica Mayhew
Leanna Chard – Mentor: Lene Pedersen
Patrizia Chirco – Mentor: Mary Radeke
Grace Coffman, Kailie Dombrausky, Emily Patton and E. Chadwick de Bree – Mentor: Mary Lee Jensvold
Elizabeth Coggeshall – Mentor: Jessica Mayhew
Mailelei Faletogo – Mentor: Joanne Perez
Adam Fruge – Mentor: Patrick Lubinski
Mireille Gonzalez, Nicole Douglas, Emma Olson, Hannah Gassman, Jodi Roush and Bailey Haines – Mentor: Kara Gabriel
Victoria Green, Jodi Roush, Bailey Haines, Nicole Douglas and Emma Olson – Mentor: Matthew Altman
Benjamin Hansen and Annie Zimmerman – Mentor: Tonya Buchanan
Kayla-Ann Hemmings – Mentor: Kara Gabriel
Kristen Jones, Miranda Stowell, Bianca Lopez, and Courtney Deveny – Mentor: Heath Marrs
Azalea Koestler – Mentor: Maribeth Jorensen
Kalli Kohnen – Mentor: Lori Sheeran
Anna Kriuchkova – Mentor: Penglin Wang
Meri Lombera, Holly Leaper and Spencer Barker – Mentor: Susan Lonborg
Grayson Long and Jadvir Gill – Mentor: Tonya Buchanan
Jennifer Lund – Mentor: Melissa Johnson
Johnnise Moore – Mentor: Nelson Pichardo
Elijah Mulu and Larissa Escamilla-Ocanas – Mentor: Joshua Buchanan
Hannah Oliver, Adam Westermann and Nicole Moss – Mentor:
Taylor Parton – Mentor: Michael Mulcahy
Connor Ridgeway – Mentor: Judy Beard
Edith Saavedra – Mentor: Paul Knepper
Alexandra Sacco – Mentor: Jessica Mayhew
Bayan Saied and Gerald Lemmon – Mentor: Pamela McMullin-Messier
Joseph Thomas – Mentor: Sooie-Hoe Loke
Sydney Weinreich – Mentor: Richard Marsicano
Sydney Wirkkala – Mentor: Mary Radeke

Accessibility Studies
Han Jiang – Mentor: Naomi Petersen
Kayla Nancarrow – Mentor: Naomi Petersen
Jazmin Quinones – Mentor: Naomi Petersen

Computational Sciences
Vaughan Gilmore – Mentor: Dominic Klyve
Leni Halaapiapi – Mentor: Donald Davendra
Juan Mendoza – Mentor: Jean Marie Linhart
Aliyah Pana – Mentor: Sooie-Hoe Loke

Health Sciences
Clare Bawden, Sheila Berry and Katelyn Harrigan – Mentor: David Gee
Christi Dix, Maddie Scott and Michelle Smyth – Mentor: David Gee
David Farr and Tyler Mclure – Mentor: Leonardo D’Aquisto
Zella Hanson – Mentor: Kelly Pritchett
Nicholas Lemke – Mentor: Nicole Stendell-Hollis
Katherine St. John – Mentor: David Gee
Jess Tyrrell – Mentor: Nicole Stendell-Hollis
Alina Wang – Mentor: Jill Hoxmeier

Engineering
Kyle Aitken – Mentor: John Choi
Ali Almarri – Mentor: Lad Holden
Margaret Bahr – Mentor: Lad Holden
Christian Barrett – Mentor: Matt Burvee
Joseph Bui – Mentor: Lad Holden
Christopher Clark – Mentor: Charles Pringle
Alexandra Edwards – Mentor: Craig Johnson
Michael Funk – Mentor: Charles Pringle
Brad Hardt – Mentor: Lad Holden
Tolu Halaapiapi – Mentor: Charles Pringle
Luis Hernandez – Mentor: Charles Pringle
Samuel Johnson – Mentor: Charles Pringle
Brad Lewis – Mentor: Charles Pringle
Sheynia Martin – Mentor: John Choi
James McPherson – Mentor: Charles Pringle
Nathan Moore – Mentor: Lad Holden
Duncan Njunge – Mentor: Jeunghwan Choi
Alfonso Olivera – Mentor: Craig Johnson
Luis Perez – Mentor: Charles Pringle
Rosa Perez – Mentor: Craig Johnson
Nathan Sauer – Mentor: Craig Johnson
Ryan Shiner – Mentor: Charles Pringle
Ryan Skerbeck – Mentor: Craig Johnson
Riley Smith – Mentor: Craig Johnson
Alazone Smith – Mentor: John Choi
Nick Stadelman – Mentor: Craig Johnson
Denis Vlasenko – Mentor: Lad Holden
Tyce Vu – Mentor: Lad Holden
Joseph Watt – Mentor: John Choi

**Natural Sciences**
Hyoeun Ahn – Mentor: Ian Quitadamo
Josh Allen, Nik Harkins and Jackey Anderson – Mentor: Patrick McCutcheon
Zach Allen, Kathleen Hawes, Adam Fruge, Joshua Henderson and Corey Dyer – Mentor: Steven Hackenberger
Riley Blanchard – Mentor: Savannah Bommarito – Mentor: Megan Walsh
Susana Camacho Plascencia – Mentor: Todd Kroll
Spencer Canada – Mentor: Meaghan Wetherell
Daniel Chavez and Kaylee Troth – Mentor: Anne Johansen
Meng Yang Chen – Mentor: Aidan Chissus – Mentor: Mary Poulson
Calvin Cook – Mentor: Anne Johnansen
Linsey Curry and Taylor Henne – Mentor: Blaise Dondji
Mohannad Dahlawi – Mentor: Jennifer Lipton
Alexia Davila and Jacqueline Flaherty – Mentor: Eric Graham
Evan Davis-Brier and Jared Vanlaethem – Mentor: Daniel Beck
Nicholas DeHollander and Zack Iverson – Mentor: Daniel Beck
Kaitlyn Dykstra – Mentor: Carin Thomas-Bradley
Nicole Enger – Mentor: Todd Kroll
Sydney Galbreath and Scout Wesselman – Mentor: Erin Craig and Derek Ricketson
Jorge Garcia – Mentor: Timothy Beng
Noah Gorski – Mentor: Gabrielle Stryker
Kenlei Gunther and Kendra Laidlaw-Mays – Mentor: Blaise Dondji
Kathleen Hawes – Mentor: Steven Hackenberger
Mason Heath – Mentor: Nathan Kuwada
Sarah Hibdon – Mentor: Robert Hickey
Mackenzie Hughes, Dennis Wilson, Nik Harkins and Mallory Triplett – Mentor: Patrick McCutcheon
Trevor Johnson – Mentor: Carey Gazis
Naomi Kaku and Megan Woods – Mentor: Jennifer Dechaine-Berkas
Grace Keller – Mentor: Mary Poulson
Eric Kuhta and Jessica Kisner – Mentor: Andy Piacsek
Julia Kunas – Mentor: Patrick McCutcheon
Jamie Lijegren – Mentor:
Jennifer Magana and Silvia Gutierrez – Mentor: April Binder
Martin Mattes – Mentor: Michael Braunstein
Heather McKinnon and David Farr – Mentor: Alison Scoville
Nicole McPhee and Lisa Stingley – Mentor: Breanyn MacInnes
Jessica Morris – Mentor: Steven Hackenberger
Caleb Mortensen and Trace Hislop – Mentor: Timothy Sorey
Ashleen Reddy – Mentor: Anne Johnansen
Ivianne Redman and Rachel Davey – Mentor: Timothy Beng
Amanda Ringer and Baeleigh Berry – Mentor: Audrey Huerta
Natalie Robinette, Rowan Thomas, Olivia Dearing and Roy Cruz – Mentor: Carol Ready-Dompier
Morgan Rodriguez – Mentor: Timothy Beng
Griffin Running – Mentor: Cassandra Fallscheer
Macy Schmidt, Sara Shellenberger and Gretta Hoke – Mentor: Daniel Beck
Lindsay Schulz – Mentor: Clay Arango
Meagan Smith – Mentor: Timothy Beng
Jesse Squibb – Mentor: Robert Hickey
Allison Staten and Noelle Scofield – Mentor: Clay Arango
Mackenzie Stinson, Jazmin Gonzalez, Angelica Bustos-Ortiz, and Carla Barbosa – Mentor: Daniel Beck
Lauren Taracka, Emma Houghton, Max Taylor, Mich Thomas and Tristan Lashua – Mentor: Daniel Beck
Mallory Triplett – Mentor: Patrick Lubinski
Bret Vagt and Sarah Sanders – Mentor: Levente Fabry
Xiangyu Wen – Mentor: Susan Kaspari
Anjanette Wilson – Mentor: Kristina Ernest
Drew Wilson – Mentor: Gabrielle Stryker
Anna Winnett, Alexia Davila, and Nick Lemke – Mentor: David Gee
Thursday, May 16

SURC 135 Law & Justice

10:00am - 11:30am
Speakers: Jahkari Aujla-Singh, Morgan Rodriguez, Daisy Hernandez-Hurtado, Marcelo Berganza, Vivian Diaz, Linden Elggren, Liliana Fausto, Jessica Hernandez, Maria Martinez, Janeth Nunez, Marisol Serrano-Perez, Simone Tuilaepa, Katie Van de Water, Quincy Harthun, Alejandra Lopez Rocha, Deonte Smith, Anna Gomez, Mariah Hogan

Alejandra Lopez Rocha - Structural Violence in Mexican Immigration
Mentor: Charles Reasons

Deonte Smith - The Death Penalty: Race Matters
Mentor: Teresa Divine

Anna Gomez - Gendered Disparities in Educational and Vocational Programming in America's Prisons
Mentor: Roger Schaefer

Mariah Hogan - The law and Herpes: A Positive Contradiction
Mentor: Robert Claridge

Quincy Harthun, Jahkari Aujla-Singh, Marcelo Berganza, Vivian Diaz, Linden Elggren, Liliana Fausto, Jessica Hernandez, Daisy Hernandez Hurtado, Mariah Martinez, Janeth Nunez, Morgan Rodriguez, Marisol Serrano-Perez, Simone Tuilaepa, and Katie Van de Water - Social Justice through Service Learning
Mentor: Elizabeth Vidaurri

SURC 140 Geography/Environmental Studies

10:00am - 11:30am

Speakers: Shelby Hamblen, Shaun Morrison, Amber Frodsham, Beth Macinko, Carson Risner, Jason Bradshaw, Edward Hunt

Shaun Morrison - Distribution of Invasive Plants on Debris Cones at Mount Rainier National Park
Mentor: Megan Walsh

Amber Frodsham - Out of Sight, Out of Mind
Mentor: Salam Awad

Beth Macinko - Assessing trail use and management: a case study of the Foothills trail system near Wenatchee, Washington
Mentor: Jennifer Lipton

Carson Risner - Washington State Rooftop and Community Solar Installations: A Spatiotemporal Analysis
Jason Bradshaw - CWU Sustainability Web Map
Mentor: Sterling Quinn

Edward Hunt - OpenStreetMap Editor Tag Analysis using Crowd Lens

Shelby Hamblen - In the Face of Change: Impacts of Landscape Change in Well-Established Groups in Roslyn, Washington
Mentor: Hope Amason
SURC 137 A Leadership Studies
10:00am - 11:00am
Speakers: Jadzeah Hall-Stanfill, Jeffrey Vargas, Kris Baker, Ian Cash

Jadzeah Hall-Stanfill - Full-Range Leadership Applications
   Mentor: James Barnett
Jeffrey Vargas - Why Leadership is Essential for Team Dynamics
   Mentor: James Barnett
Kris Baker - The Essential Element to Group Achievement
   Mentor: James Barnett
Ian Cash - Full Range Leadership
   Mentor: James Barnett

SURC 201 Computer Science
10:00am - 11:00am
Speakers: Jose Luis Alonso, Francisco Gontes, Amanda Hoesman-Foley, Andrew Dunn, Thomas Jaszczultz, Steven Copenhaver, Chao Huang Lin (G), Parker Jones, Angela Quach, Hermann Yepdjio Nikouanga (G), Christopher Martin, Benjamin Stecher, Juan Marin, Hailey Dhanens, Casey Chen, Derek Vaughan, Matt Harker, Lubna Alzamil (G)

Steven Copenhaver, Jose Luis Alonso, Francisco Gontes, Amanda Hoesman-Foley, Andrew Dunn, and Thomas Jaszczultz – K.C. Cab Client-Side Mobile Application
   Mentor: Szilard Vajda
Chao Huang Lin, Hermann Yepdjio and Lubna Alzamil (all Graduate Students) – Life Insurance Simulation in R
   Mentor: Donald Davendra
Parker Jones, Christopher Marin, Benjamin Stecher, and Juan Marin – Preserving Chain of Evidence for Smartphone Video Recording
   Mentor: Boris Kovalerchuk
Angela Quach, Hailey Dhanens, Casey Chen, Derek Vaughan, and Matt Harker – Human-Robot Interaction Using the NAO Robot
   Mentor: Donald Davendra

SURC 202 MLC Showcase
10:00am – 11:00am
Multimodal Learning hosts the 3rd annual SOURCE showcase of teaching innovations by CWU faculty to foster technology-enhanced teaching and learning. This year, the showcase presents:

M. O'Brien: “New hybrid technologies and digital pedagogy at CWU”
Jason Dormady: “Using Extended Role Playing Games In University Courses”
Wendie Castillo: “Remote Supervision Strategies”
Chad Schone: “Blackboard Ally Rollout: Multimodal’s Digital Accessibility Initiative for Fall 2019”
Feast Your Eyes, Group Performance in American Sign Language SURC Theater
Mentor: Jer Loudenback
10:00am - 11:30am

ASL 301: American Sign Language Literature Class

ABC Stories
Ally Robbin - "Making Pizza"
Katie Engle - "Cattle Roping Practice"
Rae West - "Bad Dream"
Jacob Tucker - "Disaster Chef"

Handshape Stories
Ally Robbins - "Going Surfing"
Seth Downs - "Cutting Firewood"
Samm LaRue - "Walking a Trail with a Friend"
Mina Craig - "Japan in Spring"
Will Hofstede - "Making Pancakes"
Lauren Serl - "Outside"
Hannah Mellon-Jackson - "Fireworks"

Number Stories
Makayla Powell - "What's That?"
Ally Robbins - "Sick"
Katie Engle - "A Bad Day for a Goat"
Raeleena Utting - "A Walk in the Park"
Sabrina Moon - "Wedding Day"
Ireland Vass - "Heaven"
Jacob Tucker - "Making a Wish"

ASL 253: Second Year American Sign Language

"The Town and the Country Mouse"
Maya Solmiren
Ashley Hemold
Tiffani Willoughby

"Belling the Cat"
Jocine Chapman
Kearia Duncan
Samantha Stevens

"The Lion and the Mouse"
Meagan Smallbeck
Taylor Wood
Essy Duran
Anna Drohman

"Three Little Kittens"
Katie Jo Stewart
Madison Hamilton
Jordan Adams

"Three Oral Mice"
Ashley Saunders
Cora Hajicek
Aubrie Stralser
ASL 301: American Sign Language Literature

ASL Poetry

Annie Zimmerman - "Decision to Get A Dog"
Lauren Serl - "Ugly Garden Becomes Beautiful"
Makayla Powell - "My Favorite Memory of Guam"
Ireland Vass - "CODA Gain"
Sabrina Moon - "Camping at the Beach"
Jacob Tucker - "Identity"
Hannah Mellon Jackson - "I Can"
Samm LaRue - "My Favorite Place"
Raeleena Utting - "My Brother's Funeral"

Visual Vernacular

Makayla Powell - "The Fly"
Hannah Mellon-Jackson - "Fetch"
Mina Craig - "Volcano"
Annie Zimmerman - "Band Practice"
Will Hofstede - "Tubing"
Seth Downs - "Mountain Goat"
Ireland Vass - "Sky High"
Rae West - "Graduation"

Word Characterization

Katie Engle - "YoYo" Raeleena Utting - "Family"
Samm LaRue - "Dream" Sabrina Moon - "Elephant"
Mina Craig - "Tennis" Seth Downs - "Drop"
Rae West - "Tetris" Annie Zimmerman - "Stress"
Will Hofstede - "Library" Lauren Serl - "Shadow"

SURC 137 A Leadership Studies II

11:00am - 12:00pm

Speakers: Olivia Marx, Ryan Perkins, Tommy Martinez, Rollie Enriquez

Olivia Marx - Effective Followership
Mentor: James Barnett

Ryan Perkins - George Washington: A Historical Example of Transformational Leadership
Mentor: James Barnett

Tommy Martinez - Analysis of Leadership Throughout History
Mentor: James Barnett

Rollie Enriquez - Transformational Leadership
Mentor: James Barnett
SURC 137 B Economics

11:00am - 12:00pm

Speakers: Mackenzie Macllvennie, Vinnessa Bruscas, Ashlyn Cenicola, Gregory Gadow, Madeline Fair

Vinessa Bruscas - Cup and Trade: Conscious Purchasing of Coffee and Chocolate
  Mentor: Paula Collucci
Ashlyn Cenicola and Mackenzie Macllvennie - 100% Clean Energy: Is it Feasible?
  Mentor: Charles Wassell
Gregory Gadow - Ample Provision
  Mentor: Charles Wassell
Madeline Fair - Valuation of a PNC Stock
  Mentor: Thomas Tenerelli

SURC 201 Computer Science

11:00am - 12:00pm

Speakers: Chao Huang Lin (G), Shivika Dewan (G), Hermann Yepdjio Nkouanga (G), Michael Brice (G), Jumana Alsubhi, Jia Song (G), Raylison Ortelu, Sean Sullivan, Nobukoni Suzue, Burhan Ul Haq

Hermann Yepdjio Nkouanga, Shivika Dewan, and Chao Huang Lin (all Graduate Students) - Sentiment Analysis Using Machine Learning
  Mentor: Razvan Andonie
Michael Brice (Graduate Student) - Automated Classification of Stellar Spectra using the Sloan Digital Sky Survey
  Mentor: Razvan Andonie
Jumana Alsubhi, Raylison Ortelu, Sean Sullivan, Nobukoni Suzue, and Burhan Ul Haq - Iris Based Medical Diagnosis
  Mentor: Szilard Vajda
Jia Song (Graduate Student) - Handwritten Chinese Character Recognition Using Deep Neural Networks
  Mentor: Szilard Vajda

SURC 202 Faculty Presentations

11:00am - 12:00pm

Speakers: Mattias Olshausen, Maura Valentino, Charles Pringle, Geri Hopkins

Charles Pringle - Assessment of Student Outcome for Geometric Dimensioning and Tolerencing (GD&T)

Geri Hopkins and Maura Valentino - No Textbook Cost, General Education Pathway Project

Mattias Olshausen - The International Journal of Undergraduate Research and Creative Activities (IJURCA): A Means of Publishing Your SOURCE Project and Other Work
SURC Theater Keynote Speaker

12:00pm - 12:45pm

Rashad Norris

Director of Community Engagement and Outreach Services, Highline College
Founder and Director of Relevant Engagement, LLC

Moment vs. Movement: How Culture Impacts Engagement and Sacrifice Impacts Change

Rashad received his BA in Marketing Communication with a Minor in English from the University of Puget Sound where he also played basketball. He earned his Master’s in Public Administration from the Evergreen State College. Rashad currently devotes his time as the Director of Community Engagement at Highline College where he engages with people of all ages about the importance of education. In addition, he partners with Pioneer Human Services by conducting culturally relevant healing sessions with incarcerated teens as a part of the youth's re-entry process. Rashad also delivers motivational presentations that uplift young people in the community through keynote addresses, seminars, professional development workshops, and conference presentations to adults working in education. Rashad seeks to provide essential life preparation tools and resources to our youth and young adults throughout the community.

SURC 137 A Leadership Studies III

1:00pm - 2:00pm

Speakers: Derek Davis, Jack Messinger, Jacob Sauers, Jace Duckworth

Derek Davis - Rock Solid Leadership Like Dwayne “The Rock” Johnson
   Mentor: James Barnett
Jack Messinger - Motivational Leadership

Jacob Sauers and Derek Davis - Aspects of Idealized Influence
   Mentor: James Barnett
Jace Duckworth - Team Success and the Importance of Strong Leadership
   Mentor: James Barnett
SURC 137 B Economics II

1:00pm - 2:00pm

Speakers: Madeline Fair, Luis Hernandez, Noah Anderson, Taliesin Tenerelli, Alex Ptachik, Darius Saelee, Blake Ellestad, Brian Eaves

Luis Hernandez, Taliesin Tenerelli, Alex Ptachik, and Darius Saelee (20 min) - Analyzing the Potential Effects of EGRPCPA on a Washington Community Bank
  Mentor: Thomas Tenerelli
Blake Ellestad, Taliesin Tenerelli and Brian Eaves (20 min) - Macroeconomic Outlook
  Mentor: Thomas Tenerelli
Noah Anderson - Equity Research and Modeling on Mastercard
  Mentor: Thomas Tenerelli
Alex Ptachik - Discounted Cash Flow Analysis for Stock Valuation
  Mentor: Thomas Tenerelli

SURC 140 Philosophy

1:00pm - 2:30pm

Speakers: Hunter Gunderson, Susana Camacho Plascencia, Seth Hanke, Nils Johnson, Dionicio Torres, Emily Spicer

Seth Hanke (15 minutes) - The Face and Economics: How the Modern Economy has Alienated Us from Others
  Mentor: Cynthia Coe
Susana Camacho Plascencia - Kant and Levinas in Bettering the Patient-Physician Interaction
  Mentor: Cynthia Coe
Nils Johnson (20 minutes) - Ecosystems and Obligations: Oostvaardersplassen and the Moral Challenges of Rewilding Ecosystems
  Mentor: Cynthia Coe
Dionicio Torres - Shame in the Animal Kingdom
  Mentor: Michael Goeger
Emily Spicer - Ethics and Power Dynamics of Age Difference in Romantic and Sexual Relationships
  Mentor: Michael Goeger
Hunter Gunderson - Snakes in the Grass; Animals and Righteousness
  Mentor: Matt Martinson
**SURC 201 Computer Science/Mathematics**

1:00pm - 2:00pm

Speakers: Heather McKinnon (G), Divya Chandrika Kalla (G), Brian Hooper (G), Aliyah Pana, Rachel Walker, Olivia Vasquez, Riley Krall

Brain Hooper (Graduate Student), Heather McKinnon (Graduate Student), and Divya Chandrika Kalla (Graduate Student) - Annuity Profit Simulation  
   Mentor: Donald Davendra

Brian Hooper (Graduate Student) - Emotion classification  
   Mentor: Razvan Andonie

Aliyah Pana - Compartmental Models for Infectious Disease  
   Mentor: Caleb Dunlop

Rachel Walker, Olivia Vasquez, and Riley Krall - An Optimized Drone Fleet Response System  
   Mentor: Jean Marie Linhart

**SURC Theater Supreme Court Panel**

1:00pm - 2:30pm

Speakers: Breanna Wilson, Megan Fore, Jahkari Aujla-Singh, Christianna Hopson, Ronnie Burris, Katelyn Griffith

Ronnie Burris - Carpenter v. Murphy  
   Mentor: Robert Claridge

Jahkari Aujla-Singh - Unconscious and Unwarranted  
   Mentor: Teresa Divine

Christianna Hopson - Drawing Us Out  
   Mentor: Teresa Divine

Megan Fore - Bucklew v. Precythe  
   Mentor: Robert Claridge

Katelyn Griffith - McDonough v. Smith  
   Mentor: Robert Claridge

Breanna Wilson - Gundy v. US  
   Mentor: Robert Claridge
SURC 135 USHLI

2:00pm - 3:00pm
Speakers: Alejandra Lopez Rocha, Marcelo Berganza, Marisol Seranno-Perez, Luis Fernandez, Osvaldo Sanchez Velasco, Chris Hernandez, Oscar Licon, Eunice Perez, Melisa Corrales, German Godinez Salgado, Jessica Medel Rosales, Alan Caro, Uriel Peizer, Pamela Bonilla-Batres, Angel Guzman, Alejandro Alcantar, Susana Camacho Plascencia, Sofia Castro-Loza (G), Erandy Esquivel, Jaquelin Flores Marin, Daisy Hernandez-Hurtado, Kirsten Kimminau

Angel Guzman, Eunice Perez, Melisa Corrales, German Godinez Salgado, Jessica Medel Rosales, Alan Caro, Uriel Peizer, and Pamela Bonilla-Batres - USHLI and the Untapped History of the Latinx Community
  Mentor: Makaiya Simmons
Alejandro Alcantar, Sofia Castro-Loza (Graduate Student), Erandy Esquivel, Jaquelin Flores Marin, Daisy Hernandez-Hurtado, and Kiersten Kimminau - USHLI and the Future Latinx Leaders
  Mentor: Veronica Gomez Vilchis
Susana Camacho Plascencia, Luis Fernandez, Osvaldo Sanchez Velasco, Marcelo Berganza, Chris Hernandez,
Alejandra Lopez Rocha, Marisol Serrano-Perez, and Oscar Licon - USHLI Reflections: Latinx Empowerment Conference
  Mentor: Manuel Rodriguez

SURC 137 A Leadership Studies IV

2:00pm - 3:00pm
Speakers: Aubrey Arce, Austin Davis, Alex Mathews, Matt Woodman, Devin Hunt

Austin Davis - Problem Solving and Leadership
  Mentor: James Barnett
Alex Mathews - Leading while being an effective follower
  Mentor: James Barnett
Matt Woodman - Full Range Leadership Model
  Mentor: James Barnett
Devin Hunt - Management By Exception Vs. Transformation Leadership: The Why and How
  Mentor: James Barnett
Aubrey Arce - What’s the Context? An Analysis of New Orleans, the City of Contradictions
  Mentor: James Barnett
**SURC 137 B Economics III**

2:00pm - 3:00pm

Speakers: Madeline Fair, Luis Hernandez, Taliesin Tenerelli, Sean Graver, Ben Behlmann

Luis Hernandez and Sean Graver - Habit Burger Stock Analysis  
   Mentor: Thomas Tenerelli

Taliesin Tenerelli and Madeline Fair - Stock Market Valuation  
   Mentor: Thomas Tenerelli

Taliesin Tenerelli - Company Valuation Using Discounted Cash Flow Analysis  
   Mentor: Thomas Tenerelli

Ben Behlmann - A Valuation of American Express  
   Mentor: Thomas Tenerelli

**SURC 202 International Student Panel**

2:00pm - 3:00pm

Moderators: Anna Miller

Speakers: Guzaloi Rakhimova, Vy Dam, Aziliz Unvoas, Singo Maniga, Sohib Abohussein Sr, Koki Ikeda

CWU Students from around the world will share their experiences regarding adjustments, challenges, and surprises they have encountered coming to CWU from cultures and education systems that may be vastly different from the US. Our panelists from Vietnam, Kyrgyzstan, Jordan, Cote D'Ivoire, France, and Japan will address various cross-cultural themes such as academics, politics, and social structures.
SURC Theater Alumni Keynote Speaker

4:15-4:45pm (during SOURCE Awards Ceremony)

Daniel Becker, DMA

Assistant Professor of Woodwinds, Valley City State University

Academic Writing in a Performing Field: Mastering a Different Kind of Art

Not all academic fields are created equal--what constitutes "research" can take on different forms in different disciplines. This is especially true in the performing arts, in which research can take the form of live performances, master classes, clinics, and workshops. Even with all of this, however, many performers in academia are also expected to be proficient in academic writing, through materials such as dissertations, publications in scholarly journals, course syllabi, and more. This talk will explore the various ways in which academics in the performing arts must balance performing and writing duties, as well as strategies for maintaining this balance and getting writing published.

International soloist Daniel Becker is currently Assistant Professor of Woodwinds at Valley City State University in Valley City, North Dakota. Dr. Becker spent five years performing with the Yakima Symphony Orchestra (WA), including two seasons as principal clarinet of the group. He has also performed with the Tucson Symphony Orchestra and Tucson Pops Orchestra. He has performed and given clinics and master classes throughout the western United States and abroad in Costa Rica, Japan, Mexico, and Canada. Also a music theorist, Dr. Becker has presented his research multiple times at the University of Arizona, abroad at the 2nd Annual Conference for the Study of Progressive Rock in Edinburgh, Scotland, and most recently at the 2016 International Clarinet Association Research Competition in Lawrence, Kansas. Originally from Henderson, Nevada, Dr. Becker holds Doctor of Musical Arts and Master of Music degrees, both in Clarinet Performance, from the University of Arizona and Bachelor’s degrees in Music Education and Wind Performance from Central Washington University. His teachers have included Jerry Kirkbride, Florie Rothenberg, Joseph Brooks, and Felix Viscuglia.
SOURCE De-Stress Room

SURC 131
May 15 - 16, 2019
9:00am - 5:00pm

Soothing tea, puzzles, crosswords, sudoku, coloring, books, and VR mindfulness stations where you can visit the ocean, mountains, and more.

Come relax and enjoy some quiet time in between sessions.
ACKNOWLEDGMENTS

Director, Office of Undergraduate Research
Griff Tester

Program Coordinator, Office of Undergraduate Research
Erin Cone

Graduate Assistant, Office of Undergraduate Research
Tasha Lightning

SOURCE Planning Committee
Julie Carmen, Erin Craig Ricketson, Patrick Dizney, Volha Isakava, Carla Jellum, John Neurohr, Gabrielle McNeillie, Alyson Rogan-Klyve, Maureen Rust, Steve Wenger

Promotional Support & SOURCE Testimonial Booth
CCA Team - Madison Gilbert, Isabelle Grotting, Christian Nesselquist

Online Streaming Access and Recordings/ Poster Printing Liaison
Chad Schone (Multimodal Education Center)

Des Moines Campus Coordinators
Kurt Ikemeier, Mishel Kuch, Monica Medrano,

SOURCE Website - source2019.sched.com
Sched, Erin Cone, Griff Tester, Tasha Lightning

Human Subjects Review Committee (HSRC) and Institutional Animal Care and Use Committee (IACUC)
Sandy Martinez, Jason Irwin, Leslie Lotspeich, Griff Tester, Tasha Lightning, Julie Carmen

CWU Disability Services and Washington Sensory Disability Services; De-Stress Station
Kendall Smart, Jer Loudenback

SURC Scheduling and Coordination
Drew Carter, Bonnie Hendrickson, Mackenzie Carter, Cassidy Bennet, Michelle Han

Volunteer Coordination and Support
Andre Dickerson (CLCE), Carla Jellum

The OUR Team
Thank You to Our Faculty Mentors

<table>
<thead>
<tr>
<th>Name</th>
<th>Name</th>
<th>Name</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matthew Altman</td>
<td>Carey Gazis</td>
<td>Michael Middleton</td>
<td>Carin Thomas-Bradley</td>
</tr>
<tr>
<td>Hope Amason</td>
<td>David Gee</td>
<td>Anna Miller</td>
<td>Szilard Vajda</td>
</tr>
<tr>
<td>Razvan Andonie</td>
<td>Rachel George</td>
<td>Marji Morgan</td>
<td>Zach VandeZande</td>
</tr>
<tr>
<td>Clay Arango</td>
<td>Jamie Gilbert</td>
<td>Michael Mulcahy</td>
<td>Elizabeth Vidaurri</td>
</tr>
<tr>
<td>James Avey</td>
<td>Michael Goeger</td>
<td>Joshua Nelson-Ichido</td>
<td>Sharryn Walker</td>
</tr>
<tr>
<td>Salam Awad</td>
<td>Veronica Gomez Vilchis</td>
<td>Lisa Norris</td>
<td>Megan Walsh</td>
</tr>
<tr>
<td>Howard Barlow</td>
<td>Maru Gonzalez</td>
<td>Michele O'Brien</td>
<td>Penglin Wang</td>
</tr>
<tr>
<td>James Barnett</td>
<td>Eric Graham</td>
<td>Geraldine O'Mahony</td>
<td>Chad Wassell</td>
</tr>
<tr>
<td>Maj Barnett</td>
<td>Ralf Greenwald</td>
<td>Lene Pedersen</td>
<td>Charles Wassell</td>
</tr>
<tr>
<td>Tina Barrigan</td>
<td>Steven Hackenberger</td>
<td>Liane Pereira</td>
<td>Meaghan Wetherell</td>
</tr>
<tr>
<td>Judy Beard</td>
<td>Daniel Herman</td>
<td>Joanne Perez</td>
<td>Benjamin White</td>
</tr>
<tr>
<td>Daniel Beck</td>
<td>Robert Hickey</td>
<td>Heidi Perez</td>
<td>Therese Young</td>
</tr>
<tr>
<td>Timothy Beng</td>
<td>Lad Holden</td>
<td>Naoki Petersen</td>
<td></td>
</tr>
<tr>
<td>April Binder</td>
<td>Jill Hoxmeier</td>
<td>Andy Placek</td>
<td></td>
</tr>
<tr>
<td>Michael Braunstein</td>
<td>Audrey Huerta</td>
<td>Nelson Pichardo</td>
<td></td>
</tr>
<tr>
<td>Tonya Buchanan</td>
<td>Mary Lee Jensvold</td>
<td>Holly Pinkart</td>
<td></td>
</tr>
<tr>
<td>Joshua Buchanan</td>
<td>Anne Johansen</td>
<td>Danielle Polage</td>
<td></td>
</tr>
<tr>
<td>Matt Burvée</td>
<td>Craig Johnson</td>
<td>Mary Poulsom</td>
<td></td>
</tr>
<tr>
<td>Lucinda Carnell</td>
<td>Melissa Johnson</td>
<td>Charles Pringle</td>
<td></td>
</tr>
<tr>
<td>Maya Chachava</td>
<td>Maribeth Jorensen</td>
<td>Kelly Pritchett</td>
<td></td>
</tr>
<tr>
<td>John Choi</td>
<td>Susan Kaspari</td>
<td>William Provaznik</td>
<td></td>
</tr>
<tr>
<td>Amy Claridge</td>
<td>Khodi Kaviani</td>
<td>Sterling Quinn</td>
<td></td>
</tr>
<tr>
<td>Robert Claridge</td>
<td>Deidra Kelly</td>
<td>Ian Quitadamo</td>
<td></td>
</tr>
<tr>
<td>Paula Colucci</td>
<td>Dominic Klyve</td>
<td>Mary Radeke</td>
<td></td>
</tr>
<tr>
<td>Erin Craig Ricketson</td>
<td>Paul Knepper</td>
<td>Carol Ready-Dompier</td>
<td></td>
</tr>
<tr>
<td>Leonardo D’Aquisto</td>
<td>Jason Knirck</td>
<td>Charles Reasons</td>
<td></td>
</tr>
<tr>
<td>Donald Davendra</td>
<td>Boris Kovalerchuk</td>
<td>Rodrigo Renteria</td>
<td></td>
</tr>
<tr>
<td>Jennifer Dechaine-Berkas</td>
<td>Todd Kroll</td>
<td>Derek Ricketson</td>
<td></td>
</tr>
<tr>
<td>Teresa Divine</td>
<td>Nathan Kuwada</td>
<td>Manuel Rodriguez</td>
<td></td>
</tr>
<tr>
<td>Trieu Doan</td>
<td>Kun Liao</td>
<td>Allyson Rogan-Klyve</td>
<td></td>
</tr>
<tr>
<td>Blaise Dondji</td>
<td>Jean Marie Linhart</td>
<td>Emily Rollie</td>
<td></td>
</tr>
<tr>
<td>Caleb Dunlop</td>
<td>Jennifer Lipton</td>
<td>Mark Samples</td>
<td></td>
</tr>
<tr>
<td>Emily DuPlessis</td>
<td>Sootie-Hoe Loke</td>
<td>Roger Schaefer</td>
<td></td>
</tr>
<tr>
<td>Roxanne Easley</td>
<td>Susan Lonborg</td>
<td>Alison Scoville</td>
<td></td>
</tr>
<tr>
<td>Andrea Eklund</td>
<td>Jer Loudenback</td>
<td>Lori Sheeran</td>
<td></td>
</tr>
<tr>
<td>Lori Erickson</td>
<td>Patrick Lubinski</td>
<td>Barry Shelton</td>
<td></td>
</tr>
<tr>
<td>Kristina Ernest</td>
<td>Greg Lyman</td>
<td>Makaiya Simmons</td>
<td></td>
</tr>
<tr>
<td>Levente Fabry-Asztalos</td>
<td>Breanyn MacInnes</td>
<td>Jeffrey Snedeker</td>
<td></td>
</tr>
<tr>
<td>Cassandra Fallscheer</td>
<td>Heath Marrs</td>
<td>Darci Snowden</td>
<td></td>
</tr>
<tr>
<td>Marte Fallshore</td>
<td>Richard Marsicano</td>
<td>Timothy Sorey</td>
<td></td>
</tr>
<tr>
<td>Sarah Feeney</td>
<td>Matt Martinson</td>
<td>Nicole Stedell-Hollis</td>
<td></td>
</tr>
<tr>
<td>Susana Flores</td>
<td>Jessica Mayhew</td>
<td>Gabrielle Stryker</td>
<td></td>
</tr>
<tr>
<td>Eric Foss</td>
<td>Patrick McCutcheon</td>
<td>Thomas Tenerelli</td>
<td></td>
</tr>
<tr>
<td>Kara Gabriel</td>
<td>Pamela McMullin-Messer</td>
<td>Griff Tester</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gabrielle McNeillie</td>
<td>Joseph Thomas</td>
<td></td>
</tr>
</tbody>
</table>
CONGRATULATIONS TO THIS YEAR’S SCHOLAR AND MENTOR OF THE YEAR NOMINEES

SCHOLAR OF THE YEAR NOMINEES

Anna Kriuchkova
Evan Hagen
Ian Monahan
Sophie Mortensen
Sam Spicer
Nicole Sam
Mariah Hogan
Makayla Miracle
Katelyn Stewart
Rowdy Sanford
Rosa Moreno
Mireille Gonzalez
Alan Bergman

MENTOR OF THE YEAR NOMINEES

Alex Edwards
Holly Pinkart
Kara Gabriel
Liane Pereira
Jason Knirck
Jesse Lopez
Jessica Mayhew
Mary Radeke
Gabrielle McNeillie
Hope Amason
Lori Erickson
Michael Mulcahy
Daniel Beck
Matthew Altman
Elizabeth Vidaurre
Andy Piascek
Jean Marie Linhart
April Binder
Jennifer Dechaine-Berkas
Timothy Beng
Kristina Ernest
Naomi Petersen
Barry Shelton
Erin Craig
Craig Johnson

TO LEARN THE WINNERS OF SCHOLAR AND MENTOR OF THE YEAR ALONG WITH OUR SOURCE AWARD WINNERS FOR THE BEST POSTER AND ORAL PRESENTATIONS ACROSS DISCIPLINES, PLEASE ATTEND:

SOURCE 2019 AWARDS
THURSDAY, MAY 16TH
IN THE SURC THEATER FROM 4 to 5:30 PM
EMCEED BY JOHN NEUROHR
ASSOCIATE PROFESSOR OF TROMBONE & SOURCE PLANNING COMMITTEE MEMBER

DON’T FORGET TO STOP BY THE SOURCE TESTIMONIAL BOOTH (NEXT TO THE SURC BALLROOM) AND SHARE YOUR EXPERIENCE AT SOURCE. WHETHER YOU WERE A PRESENTER, JUDGE, ATTENDEE, VOLUNTEER, OR COMMUNITY MEMBER—YOUR FEEDBACK IS VALUABLE TO US.