SOURCE 2016
PROGRAM AND PROCEEDINGS
MAY 18TH
MAY 19TH

SCHOLARSHIP FOR LEARNING
SCHOLARSHIP FOR LIFE
SOURCE 2016
SYMPOSIUM OF UNIVERSITY RESEARCH AND CREATIVE EXPRESSION

PROGRAM AND PROCEEDINGS

21ST ANNUAL CONFERENCE
MAY 18TH & 19TH, 2016

CELEBRATING EXCELLENCE IN RESEARCH, SCHOLARSHIP,
AND CREATIVE ACTIVITIES

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# PROGRAM AND PROCEEDINGS

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About SOURCE

This year, SOURCE celebrates the 21st 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 in order 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 and 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 partake in evaluating student presentations.
- Attract the attention of employers to the excellence of students at Central Washington University.
- Allow opportunities for further development of mentoring relationships and skills.
- Promotes 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 with cultural significance alongside more traditional research.
- Promote entrepreneurial spirit by encouraging students to develop and exhibit their business plans.
- Educate the University, Town, and Region about the resources and work available through Central Washington University.
President’s letter

May 13, 2016

On behalf of Central Washington University, I welcome you to the 2016 Symposium Of University Research and Creative Expression. SOURCE is CWU’s largest, multidisciplinary event and is also the longest running university-associated student symposium in our state. This year marks a significant milestone, as it is our first two-day SOURCE. The growth of SOURCE has been nothing short of phenomenal in terms of both participation and attendees.

The first event, held 21 years ago, showcased the work of 23 undergraduate students. By 2015, that number had increased to 550 presenters and their work was seen by 4,300 attendees. Even more presentations, and attendance, is expect this year, which is the reason we have—by necessity—expanded to a two-day event. Actually, SOURCE is four days in length, as there are smaller, but no less important, companion events at our campuses in Des Moines and Lynnwood.

Regardless of location, SOURCE allows us to celebrate the tremendous quality, quantity, and diversity of creative achievements, research, and scholarship produced by our undergraduate and graduate students, faculty, staff, and alumni. There will be oral and poster presentations, along with performances involve the sciences, history, literature, and educational research, as well as creative writing, music, theatre, and art. SOURCE further sets itself apart through inclusion of area elementary, middle, high school, and Running Start students, along with community members, who take advantage of an atypical opportunity for them to also present their scholarly endeavors.

Through the years, SOURCE has relied on dedicated faculty and staff, who mentor students in research, scholarship, and creative projects; students who utilize their time, energy, and intellectual curiosity to complete projects; and committed university personnel and student volunteers who labor behind the scenes. Last year, 70 volunteers and more than 100 judges, who offered their invaluable professional feedback to our presenters, selflessly offered their time and expertise to facilitate SOURCE. We expect a like number this year and I want to express my gratitude to each and every one of them for their vital efforts.

As in past, SOURCE 2016 has received key contributions from administrators, notably Dr. Anne Egger; director of the Office of Undergraduate Research, and generous financial contributions from university academic and administrative units, individuals, and corporate and community sponsors. I also want to thank this year’s 27-member SOURCE committee, comprised of faculty, staff, and students representing all areas of the university, which was chaired by Jamie Gilbert. I am very appreciative of its efforts. It is through such contributions that SOURCE is now routinely regarded as one of the premier events of its kind.

Again, welcome to SOURCE, a two-day community celebration of which we all can—and should—be very proud.

Sincerely,

James Gaudino
President

Office of the President
400 East University Way  •  Ellensburg WA 98926-7501  •  Office: 509-963-2111  •  Fax: 509-963-3206
Office location Barge Hall Room 314  •  E-mail: CWU_President@cwu.edu  •  Web: www.cwu.edu/president
EEOAA/TITLE IX INSTITUTION  •  FOR ACCOMMODATION E-MAIL: CDS@CWU.EDU
SOURCE KEYNOTE

THE FUTURE OF ENVIRONMENTAL LEARNING

SURC THEATRE, WEDNESDAY, MAY 18TH, 4:00 PM

Dr. Mitchell Thomashow is currently a Fellow at Philanthropy Northwest where he dedicates his time to promoting awareness of sustainability, community, and place. Thomashow devotes his life to promoting ecological awareness, sustainable living, creative learning, and improvisational thinking.

Sponsored by The Office of Undergraduate Research & SOURCE, and the Associate Provost’s Office.
Dr. Curtis Acosta has taught high school for nearly 20 years, in Tucson Arizona, where he has developed and taught for the renowned Mexican American Studies program. He is an award winning educator and has been featured in the documentary Precious Knowledge, The Daily Show with John Stewart, and his classes were subject of multiple profiles by CNN, The New York Times, and the Los Angeles Times amongst many other media outlets.
We Congratulate All 2016 CWU Symposium of University Research & Creative Expression Participants!

Your curiosity, determination and hard work inspire us!

Through a unique, public-private partnership, Washington state is helping to grow a skilled, homegrown workforce who will foster innovation, drive our economy, and fuel a brighter future through the Washington State Opportunity Scholarship.

Scholars in the fields of STEM (science, technology, engineering and mathematics) and health care can receive up to $22,500 in scholarship funding as well as professional development and skills-building support.

2017-18 Application Available January. Learn more at waopportunityscholarship.org
Don’t forget to vote for your favorite poster for SOURCE 2017!
STUDENT-RUN, AWARD-WINNING PULSE MAGAZINE

VISIT US AT SOURCE TO HEAR HOW IT'S ALL DONE.

MAY 19 2:10-3:30 SURC 301

DON'T FORGET TO CHECK OUT THE LATEST ISSUE AND EXCLUSIVE CONTENT AT CWUPULSE.COM

@CWUPULSE PULSEMAGAZINE
STUDENT FASHION SHOW

The CWU Apparel, Textiles and Merchandising program is proud to present THE FASHION SHOW, the 20th annual spring fashion show. Come see the latest trends featured in our ready-to-wear categories. Fourteen student designers will be presenting their original lines that feature an array of styles, details and textiles. Brought to you by the FCSA 381 Fashion Show Production class and original student designs created in FCSA 488 Fashion Line Development.

Featuring two shows on Saturday, June 4, at 3:00 p.m. (doors open at 2:00 p.m.) and 7:00 p.m. (doors open at 6:00 p.m.) in the Milo Smith Tower Theater in McConnell Hall on the CWU campus. A silent auction will precede each show with proceeds supporting next year’s fashion show, student field experiences, and student scholarships. For more information email Professor Andrea Eklund at aeklund@cwu.edu. Show details can also be found on the Apparel, Textiles and Merchandising Facebook page.

BUSINESS PLAN COMPETITION

The Institute for Innovation and Entrepreneurship (I4IE) Business Plan Competition is generously sponsored by the Herbert B. Jones Foundation. All CWU students were encouraged to enter a business plan in the competition. Five finalists present their oral presentations at SOURCE. The 1st place winner will receive $5,000, the 2nd place winner will receive $3,000 and the 3rd place winner will receive $2,000. The winners will be announced at the SOURCE awards ceremony on May 25 at noon in the SURC Pit.

JUDGES:

Sandy Wheeler – Serial Entrepreneur including; Trissity, Chapters, Bowflex
David McDonnell - SCORE Board Member, Retired Owner - Right hardware Co.
Doug Webster – Director of Product Development, Treetop
Bill Provaznik – Director, CWU Institute for Innovation and Entrepreneurship
MUSICAL WELCOME

With the mentorship of Dr. John Neurohr in the Music Department, the CWU Trombone Choir will usher in the Fashion Show on the SURC Mezzanine. The CWU Trombone Choir students frequently win awards and receive recognition at auditions, music festivals, and professional engagements. The CWU Trombone Studio is recognized as one of the preeminent collegiate trombone studios in the entire Pacific Northwest region. It currently boasts a large studio of 24 music majors, and consists primarily of undergraduate students. They just returned from performing in Arlington, VA. Learn more at: https://www.cwu.edu/music/trombone-choir

SCHOLARLY SHOWCASE

Interested in research opportunities or support for your research or scholarship at Central? Check out the following tables in the 1st floor during SOURCE (in the hallway parallel to the food court – next to US Bank):

- The Science Honors Research Program,
- The Academic & Research Commons at Brooks Library,
- ScholarWorks at Brooks Library
- William O. Douglas Honors College
- The Center for Excellence in Science and Mathematics Education (CESME)
- McNair Scholars Program
- Washington State Opportunity Scholarship
- Graduate Student Association
- Undergraduate Research Club
- The Primate Awareness Network.
PROGRAM AT A GLANCE – THURSDAY, MAY 19th, 2016

Poster Session #1 – Topics:
- Biology
- Chemistry
- Environmental Studies
- Geography
- Geographical Sciences
- Resource Management

Ellemburgh High School
Walter Strom Middle School

*All sessions in room 137A and 271 and the Keynote Speaker session will be live-streamed and recorded to facilitate viewing by online students.

Dr. Curtis Acosta will speak about Culturally Responsive Education. Acosta is a former Tucson, AZ, schoolteacher who developed and taught a Mexican American studies curriculum. He now advises other communities on developing Mexican American and ethnic-studies programs through the Xicano Institute for Teaching and Organizing.

11:00-11:10 am
Keynote Speaker, Dr. Curtis Acosta in the SURC Theater*
Monday, May 16
SOURCE at the Des Moines Center
Higher Education Center (Building 29)

Poster Session – 5:00–8:00 pm

1.“Egg”cellent Egg Strength  Alexandra Chipman
2. Global Climate Change: Public Perception of Scientific Reality  Josue Chavez, Trevor Carslay
3. Heating a home using compost  Valdemar Lodholm
4. Socioeconomic Segregation and the Location of Assisted Living Facilities in WA State  Miranda Anderson
5. Uneven development and Community Development Block Grants  Stefan Turner
6. What do theocracy and democracy have in common?  Khodadad Kaviani

Tuesday, May 17
SOURCE at the Lynnwood Center
Snoqualmie Hall

Poster Session – 5:00–8:00 pm

1. Implementation Life Cycle of Management Information Systems  Sara Ciuk, Jared Gunderson, Jessica Berg, Ferdinandus Haris
2. Analyzing Natural Disaster Risk for Supply Chain Operations  Van Huynh, Todd Jewell, Matthew Holland
3. The Impact of Globalization on Supply Chain  Karma Lhaden, Zhihong Lin, Kelvin Kwandy
4. Fender’s Built-to-Order strategy  Jacob West-Ugartechea, Larry Thompson, Joshua Reichert
Opening Event

12:00–12:30 PM  Musical Welcome and Fashion Show  SURC Pit

Workshops

12:40–2:00 PM  How to get started in research and scholarly work  Room 301
During this workshop, you will learn what it means to “do research” in any field, describe your own interests and where they might take you in scholarly work, practice strategies for approaching potential faculty mentors, and learn about opportunities for funding your work and travel to present your work. Appropriate for students at all levels, from freshman to seniors.

2:10–3:30 PM  Writing the statement of purpose for graduate school applications  Room 301
In this workshop, we will have a general introduction about applying to grad school and the nature of the statement of purpose. Then we will practice writing and give feedback to each other in disciplinary sub-groups. You will leave the workshop with the beginnings of your graduate school application and strategies for writing and getting feedback.

Alumni Panels

2:10–3:30 PM  English Department Alumni Panel  Room 140
Five recent English Alumni will discuss their developing careers. Because they are successfully negotiating today’s job market, they have valuable insights for our current students.

2:10–3:30 PM  Philosophy and Religious Studies Alumni Panel  Room 201
Whether you intend to pursue a career in academia, law, or public service, these graduates know how to navigate the challenges of your chosen path. Join us for an entertaining and candid conversation about how you can put your philosophy degree to work.

2:10–3:30 PM  Life & Work after Graduation: Advice from Communications Alumni  Room 202
A goal of the panel is to give advice to our communication students about what they can do to prepare for what happens after graduation from Central. Panelists will tell their own stories and talk about things they wish they had known when they were a student but no one ever told them.

2:10–3:30 PM  Life & Work after Graduation: Advice from WL Alumni  Theater
The speakers will talk about the value of their WL degree(s) (Spanish, Japanese, and French) for work and life. They may tell their own story and talk some about things they wish they had known when they were students but no one ever told them.

Keynote Speaker

4:00–5:00 PM  Mitchell Thomashow: The Future of Environmental Learning  Theater
Environmental Learning is at a crossroads. How do campuses and communities address the extraordinary environmental challenges of the next several decades?
### Oral Sessions – 12:40–2:00 pm

#### Session 1: COMPUTER SCIENCE  
Chair: Razvan Andonie  
Room 135

- **12:40 PM**  
  SIWI - Visual Stock Analysis Made Simpler  
  *Travis Hardman, Kenneth Mullinix, Ryan Millard, Jonathan Misiak, Zachary Wilcox*

- **1:00 PM**  
  Automatic classification of perceived gender from face images  
  *Joseph Lemley, Sami Abdul-Wahid, Dipayan Banik*

- **1:20 PM**  
  Bizubee  
  *Gabriel Ratener*

- **1:40 PM**  
  Image Recognition using Spiking Neural Networks and Hierarchical Encoding Mechanisms  
  *Sami Abdul-Wahid*

#### Session 2: ENGLISH  
Chair: Christine Sutphin  
Room 140

- **12:40 PM**  
  Alluring Games: Feminism and Dystopian Fiction  
  *Maili Jonas*

- **1:00 PM**  
  Which is the Rooster and Which is the Hen: Evolving Gender Roles in This Side of Paradise  
  *Mary Killeen*

- **1:20 PM**  
  The Work of a Nepantlera: Moving Away From Patriarchal Paradigms in the Work of Ana Castillo  
  *Amanda Patrick*

- **1:40 PM**  
  A Poetic Persona: The Creation, Chaos, and Character of John Berryman’s Dream Songs  
  *Kimberly Glenn*

#### Session 3: PSYCHOLOGY  
Chairs: Anthony Stahelski & Mary Radeke  
Room 201

- **12:40 PM**  
  Symposium: Extending Darwin’s Facial Hypotheses Beyond Emotion

#### Session 4: SERVICE LEARNING  
Chair: Jeffrey Snedeker  
Room 202

- **12:40 PM**  
  Sexual Assault Prevention at CWU: Are We Doing Enough?  
  *Lindsey Bates, Edith Martinez, Mariela Martinez, Jessica Ortega-Mendez, Jordan Rocco*

- **1:00 PM**  
  2016 CWU Bateman Competition  
  *Travis Isaman, Nicolette Bender, Jasmine Randhawa, JoAnn Briscoe*

- **1:20 PM**  
  Music Advocacy at CWU  
  *(40 minute presentation)*  
  *Jeffrey Snedeker, Rachel Kramer, Hannah Mowry, Erik Poehlman, Hayley Stephenson*

#### Session 5: POLITICAL SCIENCE  
Chair: Mathew Manweller  
Room 271

- **12:40 PM**  
  American Outreach and the Liuzhou Association of Overseas & Returned Scholars (LAORS)  
  *Qiwen Wang*

- **1:00 PM**  
  Force and Firearms in China  
  *Yu Zhao*

- **1:20 PM**  
  Content Media Analysis of English & Spanish Newspapers in Yakima County, WA  
  *Edgar Zamora*

- **1:40 PM**  
  U.S. Immigration: what is broken, and how to fix it  
  *Scott Halliday*

#### Session 7: ART, MUSIC, WORLD LANGUAGES  
Chair: Nathalie Kasselis  
Theater

- **12:40 PM**  
  Indian Classical Music and Philip Glass  
  *Holly Chapman*

- **1:00 PM**  
  Camera Phones: Ubiquity of Images and Social Experience  
  *Allyson Klutenkamper*

- **1:20 PM**  
  Learning a Foreign Language: Monolingual vs. Bilingual Students  
  *Stella Kwak*

- **1:40 PM**  
  Reminiscence de l’enfance et de la nature chez Prévert, Pagnol, et Proust *(Reminiscence of childhood and nature in Prévert, Pagnol, and Proust)*  
  *Robert Koffler, Alexius Schleif*
Oral Sessions – 2:10–3:30 pm

Session 8: BUSINESS and ITAM  
Chair: Chet Claar  
Room 135

- 2:10 PM  
Is Your Identity Protected?  
Jackson Muhirwe

- 2:30 PM  
College of Business Methods of Recruiting Female Students  
Mallory Icenhower, Richard Miller, Marisol Sanchez, Monica Alcantar-Castro, Cherelle Demps

Session 12: LIBRARY AND INFORMATION SCIENCE  
Chair: Maureen Rust  
Room 271

- 2:10 PM  
Demystifying the Research Process  
Sean Lind, Elizabeth Brown

- 2:30 PM  
Getting to Know Altmetrics  
Julie Carmen

- 2:50 PM  
Reflecting the diversity of Hispanic cultures in children's and young adult collections  
Ginny Blackson

Poster Session 1 – 12:40–2:40 pm

Room 137A & B

1. Millennials and the Workforce  Carina Ulkekul
2. Does diversity within top management teams lead to a better performance for multinational firms?  Myles Wesener
3. An Analysis of Union Growth and Future Trends  Emily King
4. IHS Tour of Israel 2015  Ben Harbaugh
5,6. Intertwined: Art and Chemistry (II)  Tarra Hall
7,8,9. The Nature of Our Nature  Krista Zimmerman
11. Anomalous arterial pattern of human upper limb: A cadaver case study  Joseph Galindo
12. Applying machine learning to predict stock value  Joseph Lemley, Yishui Liu, Dipayan Banik, Sadia Afroz
14. Equilibrium Pricing in Cherry Markets  Foster Peebles
16. Progressive Discipline  Meghan Caldwell
17. Wage and Hour Violations  Erin Wieldraayer
18. Social Media and the Hiring Process  Sarah McCafferty
20. Investigating the Effects of Oliggo-Fiber Inulin on Chocolate Fudge Brownies  Katie St John, Rotana Radwan, Sandra Valencia
21. The Effects of Using JustFiber® White Wheat Fiber to Increase the Servings of Fiber in Duncan Hines Moist Deluxe Carrot Cake  Carl Bender, Madison Henke, Lauryn Searles
22. The Effect Of Farm-To-School Participation On Childhood Obesity  Hannah Brzozowski, Nicole Stendell-Hollis, Dana Ogan, Tim Englund
23. What’s For Lunch In Chennai, India!  Alejandra Calderon, Heather Gerrish, Hannah Brzozowski
25. Heart rate and metabolic response to head-out water immersion in humans  Michael Dohrman, Mitch Fisher
26 Emulsified Mint Cod Liver Oil is an Acceptable Source of Vitamin D in Boxed Brownies Anna Eide, Katelyn Newkirk, Hannah Hugo
28 Tierra De Sienna Briana Nelson
30 Spirit High Amanda Fronckowiak
31 Alcohol consumption and use of protective behaviors among Central Washington University students: Are there any gender differences? Marie Betts, Jill Hoxmeier
32 Assessing the Need for Chemical Dependency and Co-occurring Mental Health Needs on Campus Marie Betts
33 Sustainability of Plastic Water bottles on the CWU Campus Kimberly Todd
34 Stopping Female Genital Cutting in Nigeria Nicole Field
35 Foodborne Illness: Salmonella Heidelberg Causes Multistate Outbreak in the United States Yarizel Herrera
36 Religiosity and Health Katie Kleeberger

FASHION SHOW POSTERS
37 TRI Thomas Waldron
39 Kingly Emily Olson
40 Novia Maria Zepeda
42 The Jungle Book Jesse Leaupepe
43 Veni Vidi Vici Emma Mahr
45 In Defense Of Being Average Tina Beamon
46 Tierra Ajena Yoalis Perez
48 Serendipity Lauren Abrams
49 Modern Heroine Justyna Henderson
51 Flannel Outbreak Joshua Perez
52 Set the Tone Alissa Leach
54 Skye Rachael Wescott
Thursday, May 19

Business Plan Competition – 9:00 am–12:00 pm

**Finalists:**
- Kevin Kalb, **Fire**
- Zach Howard, Alex Thiong’o, Samuel Mariga, & Tyler Lehto, **Flightbites**
- Sy Danton, **AutoMed**
- David Swanson, **Lapsea**
- Sydney Edmundson & Ivan Villareal, **Crunch-Time**
- Clayton Webster, **Mobile Mocha**

Room 301

Oral Sessions – 9:40–11:00 am

**Session 16: PRIMATE BEHAVIOR & ECOLOGY**
Chair: Lori Sheeran
Room 135

- **9:40 AM** Seasonal Differences in the Intestinal Parasites of the Saddleback Tamarin (*Saguinus weddelli*)
  
  Krista Banda

- **10:00 AM** Human-Monkey Interactions: 12 Years of Fieldwork on Tibetan Macaques at the Valley of the Wild Monkeys, Mt. Huangshan, China
  
  Lori Sheeran

- **10:20 AM** Play in immature Tibetan macaques: Location preference and causes of bout termination at Mt. Huangshan, China
  
  Kaitlin Wright

- **10:40 AM** A comparison of social behaviors of Tibetan macaques (*Macaca thibetana*) near provisioned food sources and natural food sources
  
  Brianna Voight

**Session 17: MASS INCARCERATION PANEL**
Moderators: Chuck Reasons, Roger Schaefer
Room 137A

- **9:40 AM** Mass Incarceration, Race, and the War on Drugs
  
  Jordan Segura-Mitchell, James Segura-Mitchell

- **10:00 AM** Economics of Mass Incarceration
  
  Christine De Leo

- **10:20 AM** La Familia Latina and Mass Incarceration
  
  Ashley Garcia

- **10:40 AM** Collateral Consequences of Mass Incarceration
  
  Hauke Harfst, Nina Caldwell

**Session 18: BIOLOGY**
Chair: Paul James
Room 137B

- **9:40 AM** Autumn floods and winter snow: Understanding seasonal movement and habitat use of resident Westslope Cutthroat Trout in Cascade mountain streams
  
  Chas Lawson

- **10:00 AM** Seasonal Microhabitat Selection of Young-of-the-year Bull Trout, *Salvelinus confluentus*, in a Drought Year
  
  Ashton Bunce

- **10:20 AM** Testing the forage selection of the American pika (*Ochotona princeps*) to advise vegetation plans for connectivity corridors
  
  Carly Wickhem, Kristina Ernest, Lisa Shipley

- **10:40 AM** Natural History of a Terrestrial Turtle (*Rhinoclemmys rubida perixantha*) in a Tropical Dry Forest
  
  Taggart Butterfield, Daniel Beck

**Session 19: NUTRITION, EXERCISE, & HEALTH SCIENCES**
Chair: David Gee
Room 140

- **9:40 AM** Obesity and Related Risk Factor Prevalence Among Ethnic Groups in the United States
  
  Kayla Thomas

- **10:00 AM** A Better Anthropometric Index of Abdominal Obesity and its Association on the Prevalence of Diabetes among Asian Americans
  
  Yu Xiao

- **10:20 AM** Carbohydrate Mouth Rinse and High Intensity Intermittent Exercise
  
  Garet Simpson

- **10:40 AM** Effects of Oversized Running Shoes on Sagittal Plane Kinematics and Kinetics during Running
  
  Kevin Aubol
**Session 20: MATH & ECONOMICS**  
Chair: *Dominic Klyve*  
Room 201

9:40 AM  
**An Analysis of The Mathematical Relation between Major and Minor Triads**  
*Linzy Mutch*

10:00 AM  
**Ellensburg Weather: A Time-Series Forecasting Model**  
*Madelyne Weber*

10:20 AM  
**The Economic Impact of the Exempt Water Well Moratorium and Creation of Water-Banks in Kittitas County**  
*Kaleb Javier*

10:40 AM  
**A Comparison of Implied Risk Free Rates and Treasury Rates**  
*Jesse Wehlast, Anthony Fish, Arjun Thapar*

**Session 21: AEROSPACE STUDIES**  
Chair: *Amber Johnson*  
Room 202

9:40 AM  
**How President Lincoln's Leadership Traits Apply to Modern Day Leaders**  
*Lianne Nguyen, Kylee Garcia*

10:00 AM  
**The Military and Leadership Legacy of Alexander the Great**  
*John Gossett, Ben Drake*

10:20 AM  
**General Robin Rand: How his leadership style affects those around him**  
*Andres Velez, Sarah Beck, Alex Renfrow*

**Session 22: PSYCHOLOGY & SOCIOLOGY**  
Chair: *Susan Lonborg*  
Room 271

9:40 AM  
**Effect of Prior Trauma Exposure on Alpha Amplitude, Heart Rate, and Self-Reported Negative Affect**  
*Gina DeNoble, Chris Buchanan, Susan Lonborg*

10:00 AM  
**The Effects of Sexism on Working Memory Performance in Women**  
*Sydney Jensen*

10:20 AM  
**Differences in College Students’ Attitudes towards Heterosexual and LGBT Homeless Youth**  
*Jonathan Clinkenbeard*

10:40 AM  
**Relationship Ties In College Students**  
*Alicia Brito*

**Session 23: AMERICAN SIGN LANGUAGE**  
Chair: *Jer Loudenback*  
Ballroom B

9:40 AM  
**Feast Your Eyes! Two performances in American Sign Language (ASL)**  
*Selena Addison, Veronica Benavides, Mykaela Catano-Lee, Ariana Cooks, Megan Courter, Sarah Foy, Lacey Goldsby, Amanda Huffstetler, Brittany Lancaster, Austin Lowell, Megan Macarthur, Meghan Osborn, Bailee Rogers, Mitchell Vanderman, Taylor Vetter*

Individual Creative Works  
*Micaela Clark, Micaiah Davis, Celena Gilbert, Kaiti Klepec, Laura Leist, Stephanie Main, Meghan Osborn, Kaleb Payne, Vianey Rivas*

**Session 24: THEATRE ARTS**  
Chair: *Geraldine O’Mahony*  
Theater

*Each presentation in this session is 40 minutes.*

9:40 AM  
**Love Transcends**  
*Ryan Anderson*

10:20 AM  
**Montjoie Palestine**  
*Jordan Talbot, Carmen Taylor Uding, Hannah Chandley, Shawn Kaufman, Sarah Hoot*

**Session 52: MUSIC PERFORMANCE**  
Chair: *Gayla Blaisdell*  
Concert Hall, Music Building

9:40 AM  
**A Romantic Interpretation of J.S. Bach's Contrapunctus I from The Art of Fugue**  
*Sami Abdul-Wahid*

10:00 AM  
**Creating and Performing a Composition for Tuba and Piano**  
*Joel Ragona*

10:20 AM  
**Becoming a Queen: The Analysis and Interpretation of Libby Larsen’s Try Me, Good King**  
*Caitlin Stave*

10:40 AM  
**Jack of All Trades**  
*Sabrina Juhl*
Oral Sessions – 11:10 am–12:30 pm

Session 25: Apples, Sugar & Jail Food: The Business & Politics of Food Mod: Marji Morgan Room 135
11:10 AM Apples to Apples: How the Washington Apple Industry took control of the national apple market between 1950 and 1960 Kyle Scott
11:30 AM The Impact of American Sugar Interests in Hawaii Grant Harley
11:50 AM Wartime Jail Food Kaycee Jackson

Session 26: SUPREME COURT PANEL Moderator: Robert Claridge Room 137A
11:10 AM Evolving Sense of Justice: Montgomery v. Louisiana Kailey Anthony
11:30 AM Betterman v. Montana Elizabeth Sayre
11:50 AM The Stop and a Warrant: Which Comes First? Utah v. Strieff Katie Carnell
12:10 PM Weary v Cain: The Supreme Court’s New Direction Thomas Burford

Session 27: BIOLOGY Chair: Lucinda Carnell Room 137B
11:10 AM Expression of Claudin Genes in Polycystic Ovarian Syndrome Sean Gadson
11:30 AM Developing a worm model to study effects of serotonin selective reuptake inhibitors on behavior Tykayah Baird
11:50 AM The development of eDNA sampling for use in surveying Oomycetes for amphibian and fish conservation using nanopore sequencing Doug Bennett
12:10 PM An Extendable Software Package for Determining the Effects of Developmental Interactions on Evolutionary Trajectories Elizabeth Brooks, Filip Jagodzinski

Session 28: CHEMISTRY Chair: Dion Rivera Room 140
11:10 AM Effect of Various Parameters on Bromate Formation During Drinking Water Ozonation Gaheishi Aldowis
11:30 AM Dose-Dependent Inhibition of Succinoxidase by Buckminsterfullerene (C_{60}) Juan Flores, Carin Thomas, Zach Miller
11:50 AM Rethinking the rainbow: Utilizing a classic pH demo for ocean acidification education Eamonn Clarke
12:10 PM Kinetic decay of a polymer/ink complex as an oxygen indicator Becca Hoene

Session 29: GEOGRAPHY Chair: Megan Walsh Room 201
11:10 AM Using ESRI Story Maps to Present Spatial Temporal Information Trinity Turner
11:30 AM Water Stress and Mitigation in the Thames River Basin Megan Cline
11:50 AM Why Now? A case study of split estate and fracking activity in Garfield County, Colorado Janessa Zucchtto, Elvin Delgado
12:10 PM Two Holocene sagebrush-steppe fire records at the wildland-urban interface, eastern Cascades, WA Dusty Pilkington

Session 30: AEROSPACE STUDIES Chair: William Phipps Room 202
11:10 AM Professionalism as an essential component to effective leadership Reid Eliason, Christina Black
11:30 AM The Importance of Effective Conflict and Change Management in a Military Environment Reed Lefler, Brandon Tucker, William Eris
11:50 AM Importance of Mentorship Brian Anker
Session 31: PSYCHOLOGY  
Chair: Marte Fallshore  
Room 271

11:10 AM  Reliability and Validity of the Circumplex Religious Orientation Inventory (CROI)  
Steven Isaak, Jesse James, Mary Radeke

11:30 AM  Does the Safe Space Project Create Safe Spaces for Latinx Students?  
Ayla Medina Ulloa

11:50 AM  Addressing HIV/AIDS Stigma at the Community Level  
Katie Kleeberger

12:10 PM  College Students’ Perceptions of Rape  
Dorothy Moore, Marte Fallshore

Session 32: THEATRE ARTS  
Chair: Jay Ball  
Ballroom B

11:10 AM  Destroying Christian Masculinity on Sarah Kane’s Blasted  
Elba Sanchez

11:30 AM  Muse on the Margins: Rediscovering the Plays of Sor Juana Inés de la Cruz  
Kevan Gardner

11:50 AM  Finding Frank: Searching for a Coded Surrogate in Tennessee Williams’ In the Bar of a Tokyo Hotel  
Robert Hanson

12:10 PM  A Refined Fête: Edgar Allan Poe’s Application of Mikhail Bakhtin’s Carnivalesque  
Alexis Renfro

Session 33: THEATRE ARTS/FILM & VIDEO STUDIES  
Chair: Jennifer Green  
Theater

11:10 AM  Gamer Girl: A Student Driven New Work  
Ashley Baker, Zachary Myśliwiec, Megan Courter, Wayne Ogle, Greg Scheopner

11:50 AM  Evolution of Film Criticism  
Bailee Wicks

12:10 PM  Portrayals of Trans Characters in Pedro Almodóvar’s Cinema: From Law of Desire’s Tina Quintero to All About My Mother’s Agrado  
Sarah Clinger

Oral Sessions – 12:40–2:00 pm

Session 34: HISTORY  
Chair: Jason Knirck  
Room 135

12:40 PM  Skinned Shin in the Kootenai War: Violent Rhetoric in A Peaceful Conflict  
Patience Collier, Catherine Graham

1:00 PM  Fish Heads and Fishing Strikes: Cultural and Economic Agency of Native Women in Northwest Salmon Cannersies  
Patience Collier

1:20 PM  Fidel Castro and Los Barbudos: How Facial Hair Became the Symbol of a Revolution  
Luke Pearsons

1:40 PM  Stalin’s identities  
Sophie Andarovna

Session 35: COMPARATIVE POLITICS PANEL  
Moderator: Gilberto Garcia  
Room 137A

12:40 PM  Great Britain vs. Ireland: Who is the Stronger State?  
Sydney Sullivan

1:00 PM  Israel and New Zealand: A Comparison of Two Parliamentary Democracies  
Katie Klein

1:20 PM  Comparative Politics: Cuba and Venezuela  
Elvia Verduzco

Session 36: ANTHROPOLOGY & MUSEUM STUDIES, REM  
Chair: Mark Auslander  
Room 137B

12:40 PM  Narrative Seductions: Myth, Magic, and the Missing Audience  
Nicolas Crosby

1:00 PM  Engaged Buddhism and a Universal Climate Change Ethic  
James King

1:20 PM  Parrots: The Dinosaurs That Forgot To Die  
Katie Childs

1:40 PM  Sustainable Safari Practices: Education, Impacts and the Quality of Experience  
Ryan Tarver, Ken Cohen
Session 37: CHEMISTRY  
Chair: Todd Kroll  
Room 140

12:40 PM  Progress toward Aza-decannulation by Four-Carbon Homologation  
Jonathan Adams

1:00 PM  Oxo-amination of highly functionalized heterocycle-bearing alkenes  
Andrian Basargin

1:20 PM  An Investigation of Anthelmintic Components of Dalea pogonathera (Fabaceae)  
Haley Wolhart, Blaise Dondji, Kaitlin Deardorff

1:40 PM  Identification of proteins that interact with neocortical arealization factor Emx2  
Cody Gillman

Session 38: PHYSICS & GEOLOGY  
Chair: Erin Craig  
Room 201

12:40 PM  General Relativity and Cosmological Models  
Jason Arakawa

1:00 PM  Runaway Stars as a Possible Source of the Elliptical Ring Structure in NGC 7538  
Jason Arakawa

1:20 PM  Computational model of microtubule transport in axons  
Howard Yeung, Anand Rao, Nathan Kuwanda, Peter Baas

1:40 PM  Communicating seismic hazards to the Ellensburg community  
Eamonn Clarke

Session 39: AEROSPACE STUDIES  
Chair: Amber Johnson  
Room 202

12:40 PM  Ethical Leadership within the Military  
Anna Morris

1:00 PM  The Effect of Motivation in Leadership  
Robert Savino, Ariana Linse, Scott Leeming

1:20 PM  How do Ethics Impact Leadership in the USAF?  
Drew Houghton

1:40 PM  Motivational Theory and its applicability in real world experiences  
Alexander Mathison, Omar Freemire, Thomas Lenell

Session 40: PHILOSOPHY & RELIGIOUS STUDIES  
Chair: Matthew Altman  
Room 271

12:40 PM  The Art of Well-Regulated Freedom: Rousseau and Cortázar  
Braden Goveia

1:00 PM  Issues of Identity for the Human Person  
Zachary Korsgaard

1:20 PM  What's Wrong With Morality  
Alysia Rogers

1:40 PM  Ecofeminism: The Link between Women and Nature  
Jacquelyn Stroud

Session 41: MANASTASH SHOWCASE  
Chair: Xavier Cavazos  
Room 301

Presenting works from: Ryan Bailey, Donson Curtiss, Shaylynn Gould, Emily James, Haley Lindsley, Jennifer Marsh, Tranell Mayfield

Session 42: DANCE PERFORMANCE/EDUCATION  
Chair: Therese Young  
Ballroom B

12:40 PM  Life, After, A Dance Requiem: The process of writing and producing a work for dance  
Krista Connelly

1:00 PM  Convolutions  
Jacquelyn Johnson

1:20 PM  History of Teacher Education: A Reader’s Theatre  
Sharryn Walker, Brita Williams, Susana Flores, Ian Loverro, Janet Finke

Session 43: FILM & VIDEO STUDIES  
Chair: Melissa Johnson  
Theater

12:40 PM  The Evolution and Application of Violence in Cinema  
Jacob Heflin

1:00 PM  Gender and Genre  
Kristen Moerdyk

1:20 PM  “Friends” and Television’s Cultural Influence on America in the 1990s  
Brily Walked

1:40 PM  Buster Keaton’s Comedic Innovations  
Tyler Templeton
### Oral Sessions – 2:10–3:30 pm

#### Session 44: HISTORY  
Chair: Brian Carroll  
Room 135

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:10 PM</td>
<td>The Buddha’s Basic Teachings and Pedagogy</td>
<td>Hideki Takei, Yoko Allen</td>
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<tr>
<td>2:30 PM</td>
<td>Reasserting Masculinity in Colonial Uganda: Kabaka Mwanga II and his fight against the British</td>
<td>Haleigh Downing</td>
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<tr>
<td>2:50 PM</td>
<td>American Cinema in the 1950s in relation to conformity and the real/ideal</td>
<td>Claudia Trevitt</td>
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<tr>
<td>3:10 PM</td>
<td>At Home on Land and at Sea: Nineteenth Century American Sailors’ Tattoos as Evidence of Sailors’ Dual Cultural Membership</td>
<td>Pamela Stephenson</td>
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#### Session 45: LATINO STUDIES PANEL  
Moderator: Gilberto Garcia  
Room 137A

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<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>2:10 PM</td>
<td>Liberation Theology: A Theology for the People</td>
<td>Omar Manzo</td>
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<tr>
<td>2:30 PM</td>
<td>Comparative Study of Health Care Systems in Cuba and Mexico</td>
<td>Estela Cervantes</td>
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<tr>
<td>2:50 PM</td>
<td>Recruitment Policies For Latino Collage Students</td>
<td>Deysi Contreras</td>
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<tr>
<td>3:10 PM</td>
<td>US Hispanic Leadership Institute: Educate, Inspire, and Advocate in the Latinx Community</td>
<td>Maira Gutierrez, Cruz Juarez, Adriana Guijarro, Yazmin Aguilar, Armando Ortiz</td>
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#### Session 46: ANTHROPOLOGY/BLACK STUDIES  
Chair: Mark Auslander  
Room 137B

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>2:10 PM</td>
<td>Queer Modifications</td>
<td>Nicole Phillips</td>
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<tr>
<td>2:30 PM</td>
<td>10 Years of Service: Subversion of the American Dream and Working-Class Ideology Through Punk Rock</td>
<td>Elizabeth Seelye</td>
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<tr>
<td>2:50 PM</td>
<td>Field Work among Q‘eqchi’ Mayas in Semuc Champey, Alta Verapaz, Guatemala</td>
<td>YiShan Lea</td>
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<tr>
<td>3:10 PM</td>
<td>Multicultural and Trapped</td>
<td>Sayana Lombard-Chappell</td>
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#### Session 47: BIOLOGY  
Chair: Robert Weaver  
Room 140

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speakers</th>
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</thead>
<tbody>
<tr>
<td>2:10 PM</td>
<td>Extracts of the plant Dalea spp. are active against the Hookworm, Ancylostoma Ceylanicum</td>
<td>Brianda Cardenas, Blaise Dondji, Gil Belofsky</td>
</tr>
<tr>
<td>2:30 PM</td>
<td><em>Ex vivo</em> Assessment of the anthelmintic activity of Natural Plant Products on Hookworm</td>
<td>Kaitlin Deardorff, Kiah Jones, Brianda Cardenas, Shannon Fulkerson, Cassandra Ripley</td>
</tr>
<tr>
<td>2:50 PM</td>
<td><em>Trypanosoma cruzi</em>: Vectors, parasite strains, and hosts within the dry tropical forest in Jalisco, Mexico</td>
<td>Uyen Nguyen, Daniel Beck, Analiese Wenger</td>
</tr>
<tr>
<td>3:10 PM</td>
<td>Range expansion of an introduced population of checkered whiptail lizard (<em>Aspidoscelis neotessaealta</em>) in Grant County, Washington</td>
<td>Robert Peterson, Dawn Snow, James Walker</td>
</tr>
</tbody>
</table>

#### Session 48: MATH, SCIENCE, & HEALTH EDUCATION  
Chair: Jill Hoxmeier  
Room 201

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>2:10 PM</td>
<td>Studying Engagement based on the Math Activity of Set</td>
<td>Kassandra Guajardo, Brandy Wiegers</td>
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<tr>
<td>2:30 PM</td>
<td>Science Education Through Online Video</td>
<td>Trevor Taylor</td>
</tr>
<tr>
<td>2:50 PM</td>
<td>Parent-child communication about sexual health issues: What we know and what we need to know</td>
<td>Lindsey Bates</td>
</tr>
<tr>
<td>3:10 PM</td>
<td>Use of alcohol among college students: Do student athletes at CWU drink more than non-student athletes?</td>
<td>Kelly Cronic</td>
</tr>
</tbody>
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#### Session 49: TRANSNATIONAL LITERATURE PANEL  
Chair: Paulus Pimomo  
Room 202

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<tbody>
<tr>
<td>2:10 PM</td>
<td>Trade and Tourism in Aphra Behn’s Oroonoko</td>
<td>Anne Dennon</td>
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<tr>
<td>2:30 PM</td>
<td>Rita Dove’s <em>The Darker Face of the Earth</em>: Dismantling Slavery from the Inside</td>
<td>Elliot Staatz</td>
</tr>
<tr>
<td>2:50 PM</td>
<td>Nadine Gordimer’s <em>The Pickup</em>: A Counter-Colonial Journey into the Arab World</td>
<td>Alexis Renfro</td>
</tr>
</tbody>
</table>
Session 50: ENGINEERING  
Chair: Greg Lyman  
Room 271

2:10 PM  Occupational Safety and Health Educators Salary and Qualification Survey  
Sathyanarayanan Rajendran, Zack VanZanten, Dan Dorn

2:30 PM  Hogue Wind Turbine Monitoring System  
Michael Waytuck

2:50 PM  Associated Schools of Construction Student Competition: Team Preparation and Benefits to the Careers of Participants Now Employed  
David Carns, Warren Plugge

3:10 PM  Cyber Security Awareness  
Toni Hunt

Session 51: PULSE SHOWCASE  
Chair: Jennifer Green  
Room 301

2:10 PM  Finding the Pulse of Print: How the Student Staff of Pulse Magazine Made the Transition from Online to Print  
Angelica Bartorelli, Bailey Williams, Brielle Rutledge, Mackenzie Loete, Vanessa Cruz, Heidi Thaemert, Ashytn Mann, Mindi Riggenberg

Session 53: FILM & VIDEO STUDIES  
Chair: Justin Beckman  
Theater

2:10 PM  Hardship Withdrawal  
Evan Catlin, Zane Perry, Shay LaPierre, Cory Henderson, Kory Hollingsworth

2:30 PM  Collage  
Shay LaPierre

2:50 PM  Tabbie  
Jonathan Glover, Catherine Johnson, McKenzie Lakey, Julian Smart

Keynote Speaker

4:00–5:00 PM  
Curtis Acosta: Culturally Responsive Education  
Theater

Acosta is a former Tucson, AZ, schoolteacher who developed and taught a Mexican American studies curriculum. He now advises other communities on developing Mexican American and ethnic-studies programs through the Xicano Institute for Teaching and Organizing.
Poster Session 2 – 8:30–10:30 am

1. Effect of Carbon Dioxide on Ocean Acidification and Coral Calcification  
   Sarah Janssen

2. Icequakes and ocean tide near the grounding line at Beardmore Glacier, Antarctica  
   L. Jade Cooley, Howard Conway, Michelle Koutnik

3. Coastal Stratigraphy and Hazard Identification near Oak Harbor, northeast Whidbey Island, Washington  
   Brian Ostrom, Breenyn MacInnes

4. Real-Time GPS seismic monitoring of the Cascadia Subduction Zone  
   Jesse Senko

5. Investigating Taphonomic Changes of Deposits and Modeling of the 2010 Maule Earthquake and Tsunami in South Central Chile  
   Alexandra Ruiz

6. Mapping Landcover and Tsunami Runup Following a Landslide Tsunami in Taan Fjord, AK  
   Colin Bloom

7. The Spatial Distribution and Origins of Sandstone Monoliths in the Swauk Watershed, Kittitas County, WA  
   Rebeca Becerra, Daniel O’Dell

8. Channel flow studies using driftwood density analysis in Elger Bay, Camano Island, WA  
   Jasmine Bates, Clairissa De La Vergne, Rebeca Becerra

9. Dextrally offset tuff-filled paleovalleys of the Central Walker Lane: A field-based study  
   Peter Dubyoski

10. Fault Slip Rates Along the Petrified Springs Fault, Gabbs Valley Range, Nevada  
    Zac Bales

11. Likely source for nitrate of atmospheric origin in the groundwater of the lower Yakima Valley  
    Dallin Jensen

12. A study of the effects of stream restoration on the hyporheic zone of Reecer Creek  
    Samuel Smith, Brandon Thurau

13. Metamorphic Evolution of Dulan Eclogites  
    Vaughan Gilmore

14. Effects of Testosterone on Ovarian Follicle Counts in Two Strains of Mice  
    Heather Mahurin, Tatyana Pisarenko

15. The Effects of Excess Dihydrotestosterone on Adipose and Uterine tissue in a PCOS Mouse Model  
    Sierra Wenz

16. Effects of plant extracts with anthelminthic activity against mammalian cells  
    Kiah Jones, Kaitlin Deardorff, Cassandra Ripley

17. Assessment of antiparasitic potentials of the Plant Dalea spp (Fabaceae) against the hookworm  
    Ancylostoma ceylanicum  
    Lindsay Engels

18. Western Spruce Budworm frass inputs affect heterotrophic metabolism of a headwater coniferous stream  
    Natalie Levesque

19. Efficiency of Coliform Removal in a Composting Toilet  
    Tanner Urlacher, Jose Corona, Holly Pinkart

20. Does Western Spruce Budworm herbivory change catchment-stream connectivity by altering soil carbon and nitrogen dynamics?  
    Izak Neziri

21. Monitoring Multiple Cryptic Species in Altered and Restored Habitats in the Snoqualmie Pass I-90 Corridor Using Environmental DNA  
    Kayleigh Mullen

22. Micro-habitat and characteristics of leaf-cutter ant trails  
    Anna Hood, Connor Arnold, Kristen Crawford, Natalie Levesque

23. Response of Leaf cutter ants (Atta mexicana) to trail disturbance in a tropical deciduous forest in Mexico  
    Tykayah Baird, BreAnna Douglas, Christopher Johnson, Robert Peterson

24. Foraging Preferences of the Leaf-cutter Ant Atta mexicana  
    Jessica Baker, Joseph Chase, Caitlin Haisman, Brandy Rogers

25. The Effect of Organic Matter on Hyporheic Nitrification Rates in Taneum Creek  
    Sarah Clark, Sarah Olden

26. Late-season cold hardiness of overwintering adult wasps in the family Vespidae (Dolichovespula maculata & Polistes dominula)  
    Logan Kral, Shawn Corrigan

27. Gluttenus for Gluten: Wheat Protein Effect on MCF-7 Cell Growth and Morphology  
    Hannah Pederson, Heather Gerrish, Tania Aybar, Jessica Mackiewicz

28. Effects of low temperatures on digestion and metabolism of the Northern Pacific Rattlesnake (Crotalus oreganus)  
    Samantha Tidd
Contribution of Irrigation Canals to the Water Quality of Two Streams in Kittitas County, Washington
Arlene Castro, Kristell Hallsson

The Effects of Phthalate Exposure on the Neuroblastoma 2A Cell Line
Natalie Bergstrom, Hannah Dowdell, Veronica Hernandez

Using C. elegans as a Model Organism to Study the Behavioral Effects of the Antidepressant Cymbalta
Omar Martinez

Using Flow Cytometry to Measure Macrophage Phagocytosis of Fluorescent E.coli
Naomi Bryant, Catherine Treichel

Expedient access to highly functionalized iodoarylated lactams: Application to the synthesis of macrocyclic enamidynes
Brandon Mansker

Expedient construction and functionalization of allylic β-pipolicinates by [4 + 2] cycloaddition of 1,3-azadienes and glutaric acid
Monique Khim

Expedient, scalable, and modular synthesis of cyclic α-halo enamides and their synthetic applications
Spencer Langevin

Impact of Hurricane Patricia on Trees in a Tropical Dry Forest of Mexico
Katie Hovenkotter, Aaron Balagot, John Schutz, Christopher Smith

Modular access to polycyclic N,O-heterocycles using a highly functionalized allylic morpholinonate
Katie Hovenkotter

One-shot access to allylic morpholinonates by annelation of 1,3-azadienes with diglycolic anhydride
Lindsey Kotlarz

Synthetic Applications of a Versatile Piperidine-Derived Lactamoyl Ester
Hannah Braunstein

Towards the Synthesis of Novel 1,3-Azaborines as Potential Hiv-1 Protease Inhibitors
Katherine Norris, Edward Magner, Roberto Rodriguez, Sierra Hoover

Towards the synthesis of possible antibiotic products derived from lasalocid A
Diana Baluca, Eamonn Clarke, Morgan Sessions

Computational Modeling of the Dehydrogenation of Ethane Catalyzed by Iridium Nanocatalysts
Russell Kato, Joseph Jiang, Prasuna Gummagatta

Method Development for the Simultaneous Detection and Quantification of Organic Acids in Juices and Wines
Collin Meharg

George Olson, Nick Bettinson

Toxic doses and effects of the manufactured nanomaterial Buckminsterfullerene on mouse liver cells in culture
Utshaha Maharjan, Zach Miller

Bull Kelp Distribution in Northern Puget Sound, 1870-2000
Luke Stilwater, Anthony Gabriel

Updating the Projectile Point Chronology of Two Columbia River House Feature Sites: Hole-in-the-Wall-Canyon and French Rapids
Matt Johnson

ELLENSBURG HIGH SCHOOL POSTERS

Strawberry Farms Forever
Jeff Hashimoto, Logan Davis, Miranda Nover, Sichen Liang

A Plant-Based Diet: Healthy You, Healthy Planet
Jeff Hashimoto, Quinton Gasper, Ryan Creech, Owen Canterbury

WALTER STROM MIDDLE SCHOOL POSTERS

Bugs are insects but not all insects are bugs!
Trish Griswold, Conner Hilberg, Jake Kelly

Check Your Temperature: In the Open and Under a Tree
Trish Griswold, Harley McPhillips, Gretchen Huston

Chittery-cheap: Where to eat?
Trish Griswold, Amaya Smith, Brook Wolf

Drip Drip: How Much Rain Can You Get?
Trish Griswold, Beth Schilling, Josie Larned

How far does sound travel in the open and in the forest?
Trish Griswold, Jacob Isatolo, Dylan Cook

Tweet! Tweet! Where do Birds Prefer To Eat?
Trish Griswold, Tiffany Pink, Hennasy Reeves
**CONSTRUCTED OBJECTS**

1. Analysis of Wind Turbine Configurations  
   Junior Lenseigne
2. Automated Core Feeder System  
   Sergio Flores Velez
3. Inverted Pendulum  
   Cameron Gordon, Kyung Kim
4. Orchard Bin ATV Trailer  
   Neil Leitz
5. ATV Rack Extension  
   Trista Smith
6. 1/10th Scale Multiple Apple Box Lift  
   Kyle Burlingame
7. Suspension for Electrotron Vehicle  
   MacKenzie Angeledes
8. Effects of Sustained Damage on Photovoltaic Panel Performance  
   Peter Zencak
9. Solar Thermal Collector and Mobile Stand  
   Hazel Tickner, Tyson Nakamura
10. Icarus: Non-Invasive Angle of Attack Indicator  
    Robert Gread
11. Truss Alignment Tool  
    Jason Hedin
12. Electric-Powered Tree Pruner  
    Eric Heilman, Thomas Wilson, Daniel Gibson
13. Conversion Casting Adapter Hub  
    Joseph Coup
14. Jeep WJ Multipurpose Oversize Spare Tire Carrier  
    Caleb Marrs
15. Multi-Use Fireline Hand Tool  
    Bruce Bernard
16. Pneumatic Leg Extension  
    David Sedano
17. Thermodynamics Air Motor Torque Measuring Device  
    Jose Bejar
18. ASME mini RC Baja Drivetrain  
    Mike Cox, Jason Moore
19. Rider Aid, e-bike kit  
    Song Wang
20. Automotive Hub Stand Design  
    Peter Noh
21. Vertical farming  
    Taylor Fish
22. The Prosthetic Finger  
    Jose Garcia
23. Testing RFID readers and RFID blocking products  
    Paul Niman
24. Rotor Pole Lifting Device  
    Baylie Johnson
25. Using Negative Feedback in a Tube Amplifier  
    Jed Callarman
26. Portable Die Cast System  
    Brad Barringer
27. Shellfish Bag Cutting Device  
    Trevor Reher
28. Paper Airplane Building Machine  
    Abdullah Alshahrani, Hassan Bujayli, Abdullah Aldakhail
29. Bicycle Lock Combining Flexibility and Strength  
    Zachary Uhrich
30. Torque Measuring device  
    Logan Dearinger
31. Ultra light split board binding  
    Jared Van Putten
32. Dynamometer Stabilizer  
    Derek LaMarche
33. Flag Raising Device  
    Joshua Quintero
34. Torque vs RPM of Electric Motors  
    Eli Westbay

**POSTERS**

35. Locomotion Physics of a Cheetah  
    Eli Westbay
36. High Altitude Balloon Observations & Measurements During the 2017 Total Solar Eclipse  
    AJ Harpring
37. Modeling Energetic O+ Ions Interacting With Titan’s Atmosphere  
    Theodore Jimson, Mike Smith
38. Computational Model of Brownian Motion of Biomolecules in Crowded Cellular Environments  
    Jessica Carder
39. Tracking Microtubules Along an Axon  
    Brianna Owen, Howard Yeung
40. Central Washington University 2015 Cultural Resource Management Archaeological Field School on Washington Department of Fish and Wildlife Lands  
    David Davis, Jennifer Calabro-Pecora, Maxim Morton
41. A Zooarchaeological Analysis of the Mesa 12 Site: Preliminary Results  
    Justin Fitzpatrick
42. Aye Aye: Daubentonia madagascariensis  
    Helen Anderson
43. Enclosure use by a singly-housed spider monkey (Ateles fusciceps)  
    Jake Funkhouser
Visitor Effects on Chimpanzee (Pan troglodytes) Behavior at Chimpanzee Sanctuary Northwest, Washington, US Allison Farley

A Statistical Analysis of the Spatial and Temporal Components of the Sunrise Ridge Borrow Pit Site (45PI408), Mt. Rainier, Washington James Brown, Caitlin Limberg, Anne Parfitt, Patrick Lewis

Analysis of Stone Tool Assemblage Diversity and Structure from the Marymoor Site (45-KI-9) James Brown, Tyler Stensland, James Chatters

Determining Human Age Using the Coronal Pulp Cavity Index: Bioarchaeology on Barbuda, West Indies Megan McCollum

Kandi: A Study of Rave Culture Through Jewelry Brianne Shaw

Shots Fired: Simple Methods of Lifting Fingerprints Allegra Simms, Jenna Plotnikoff

Who we are is why we win: A Museum Education Plan for the Husky Clipper Katie Childs, Skyler Crady


Mathematical Modeling of Competition and Coexistence of Phytoplankton Species Luke Campbell

Classroom demonstrations improve students’ conceptual understanding of physics Adam Teig

Poster Session 4 – 1:30–3:30 pm

1 A Comparison of Education Systems of the United States and Finland Andrea Blatner, Madison Doty, Madison Pfeil, Connor Fobes

2 Classroom Management for Students with Disabilities Aunna Colter

3 Groupthink and Nazi Germany Elizabeth Rasmussen

4 Billy Murray, the Phonograph, and Forgotten Memories of American Recorded Music Erika Naficy

5 Liuzhou City’s Fantastic Stones Weiwen Huang

6 A Comparative Study of Agricultural Modernization between China and the USA, France, the Netherlands, Japan, and Israel Jing Huang


8 Regenerating Old Industrial Cities Qiong Liang, Bin Mo

9 A Different War: Vietnam in Film Derek Flint

10 American Exceptionalism and the Vietnam War Josh Sanders

11 The Many Faces of The Vietnam War Aaron Hardy

12 Vietnam Dehumanization Joseph Bauer, Drew Houghton, Brent Evans, Chris Meyers, Camrin Johnson

13 Vietnam: The Home Front Kevin Zwink, Dylan Call

14 The Place Of God Before And After The Vietnam War Samuel Coleman, Rex Wirth

15 Donald Trump, winning the Viet Nam War and making America great again Jackson Berry

16 Reforming government statistics in China Dongyin Wei

17 Underground Infrastructure: Planning, Development and Revitalization Guoliang Meng

18 Patterns of Governance and Transportation Infrastructure Wenjie Du

19 Kittitas County Water Budget Neutral Mitigation Nick Richardson

20 Professional by Day, Roller Derby Super Hero by Night Andrea Eklund, Barbara Masberg

21 Parent-child Relationships, Religion, and Substance Use Natalie Porter, Kathleen Huckins

22 The Effects of Microaggressions on Minority Students’ College Experiences Taylor Adams, Katy Mendoza, Daysi Mendez, Tanya Zambrano

23 Gender Bias in Student Evaluations of Instruction Erika LaCarney, Emma Paradise, Tom Henderson

24 Women’s Lives Matter: Women of Color and Police Brutality Sheena Wu, Samantha Zuno, Felycite Guerra, Desiree Mix

25 The Impact of Gender, Age, and Political division on Parenthood Jessica Murillo-Rosas

26 Undocumented Children & The American Foster Care System Cynthia Moreno
28 Native Lives Matter Kayla Murphy
29 Latino Lives Matter? Donde Esta el Movimiento que da Valor a las Vidas Latinas? (Where is the Latino Lives Matter Movement?) Scott Villa, Romario Solano, Israel Garcia
30 Domestic Terrorism Lianne Nguyen
31 Black Lives Matter Gianni Glover
32 Political and Personal Self-efficacy and Engagement in Activist Behaviors Jenny Pham
33 The Effect of Scent on Sleep-dependent Memory Consolidation Jenny Pham, Brandi Forgey, Alisyn Cundiff, Jesse James
34 Analyzing Whether Reading or Listening to Biblical Passages Affects Perceptions of Deity Lexie Pope, Steve Isaak, Justin Guzman
35 Correlations between Religious Orientations, Death Attitudes, and Life Meaning Steven Isaak, Jesse James, Mary Radeke
36 The Relationship Between Parental Discipline and Aggression in Children Laura Gutierrez
37 P200 Brain Wave and Visual Working Memory in Musicians and Non-Musicians Viktoriya Broyan, Ben Richardson
38 Power and deceit: Resource control frames and subordinate competence combine to predict the ability to detect deception Kendra Key, Romario Solano, Jose Garcia
39 Correct vs. Incorrect Identification of Facial Expressions Under a Time Constraint Deidra Dudney, Natasha Omura
40 The Influence of Peppermint on Productivity in the Workplace Lauren Cooper
41 A Cultural Comparison of Two Facial Inference Studies Janine Swiney, Anthony Stahelski, Mary Radeke
42 A School Mental Health Issues Survey From the Perspectives of Washington State School Psychologists Shayla Tiffany
43 Interactions Between Teacher Efficacy and Student Behavior in Elementary Schools Adopting Positive Behavior Supports Jordan Nitcy
44 Passion and Motivation in MMORPG Players Charissa Blackmore
45 The effects of question-present versus item-present conditions on acquisition of mands Paige Thornton
46 The effects of animal environments on perception and the relationship to environmental conservation Carolina Montenegro
47 The Effects of Feedback Sequence on Cognitive Performance Travis Pyle
ACKNOWLEDGMENTS

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In particular, we are grateful for the work of our two SOURCE Event Planning Practicum Students, Denise Jarnecke and Amanda Hamilton.

The Event Planning specialization prepares students for positions in special events coordination and operation, lodging sales and marketing, convention centers, destination marketing organizations, tourism planning, recreation and sports center, and many others. SOURCE is grateful for their energy and expertise, especially on the day of the event.

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Come tour the new Science Phase II building before it opens to the public

Tour times are:
Wednesday, May 18, 2016: 1:00 pm and 2:30 pm
Thursday, May 19, 2016: 9:00 am, 1:00 pm, and 2:30 pm
If you would like to go on the tour, please meet our Tour Ambassador on the East SURC Patio at the times shown above.
After attending our Keynote speaker Mitchell Thomashow’s presentation from 4 -5 pm Wednesday, May 18, visit one of our local venues for dinner and then return to campus to the Music Building to witness the performance of the amazing Kairos Quartet at 7 pm.
PROGRAM COVER DESIGN

Senior graphic design student, Wai Wong, is this year’s SOURCE poster designer under the direction of Professor Glen L. Bach in the Department of Art. The SOURCE poster and program cover is one of many academic service learning projects that students undertake in Professor Bach’s curriculum.

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AT SOURCE 2017!
MAY 17TH & MAY 18TH