SOURCE KEYNOTE

EVIDENCE-BASED TEACHING AND ACHIEVEMENT GAPS

DR. SCOTT FREEMAN

SURC THEATRE, WEDNESDAY, MAY 17TH, 4:00 PM

Scott Freeman grew up in Wisconsin and received a B.A. in Biology from Carleton College in 1978. After working in environmental education and international conservation for six years, he did graduate work at the University of Washington on the molecular systematics and morphological evolution of blackbirds and received a PhD in zoology in 1991. He is currently a Principal Lecturer in Biology at the UW, where he teaches introductory and upper-division courses and conducts research on how active learning techniques impact student performance. He is a recipient of a UW Distinguished Teaching Award.
SOURCE 2017
SYMPOSIUM OF UNIVERSITY RESEARCH AND CREATIVE EXPRESSION

PROGRAM AND PROCEEDINGS

22nd ANNUAL CONFERENCE
MAY 16, Des Moines
May 17 & 18, Ellensburg

CELEBRATING EXCELLENCE IN RESEARCH, SCHolarship, AND CREATIVE ACTIVITIES

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About SOURCE

This year, SOURCE celebrates the 22nd 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 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 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 9, 2017

On behalf of Central Washington University, welcome to our 2017 Symposium Of University Research and Creative Expression—SOURCE, the largest, multidisciplinary event and longest sustained university-associated student symposium in Washington. This year marks our 22nd SOURCE, the growth which has been phenomenal in participation and attendance.

The first event, featured the work of 23 undergraduate students. Last year, that number was 620 presenters, with their work viewed by 6,400 attendees. Even greater participation, and an even larger audience, is expected this year as close to 750 presentations are scheduled. Actually, SOURCE now stretches over three days, including the companion event at CWU-Des Moines.

Regardless of where it is held, SOURCE provides us with a chance to celebrate the remarkable quality, quantity, and diversity of creative achievements, research, and scholarship produced by CWU undergraduate and graduate students, faculty, staff, alumni, and others. Again, there will be oral and poster sessions this year, along with performances involving disciplines as diverse as art, creative writing, educational research, history, literature, music, the sciences, and theatre. SOURCE also provides rare opportunities for elementary, middle, high school, and Running Start students, along with community members, to present their scholarly accomplishments.

SOURCE would be impossible without faculty and staff, who mentor students in creative projects, research, and scholarship; students, who utilize their energy, time, and intellectual curiosity to complete a variety of undertakings; and those who unselfishly toil behind the scenes. Last year, 90 volunteers and more than 140 judges provided time and expertise to SOURCE, including through offering essential professional feedback to our presenters.

Those numbers will increase this year as SOURCE is now available online, through live streaming of our oral sessions and keynote speaker events. This new frontier provides online and University Centers students opportunities to “attend” our campus sessions. And, for the first time, we will have two online students present work in Ellensburg utilizing the Blackboard Ultra system. I am grateful for their groundbreaking efforts.

SOURCE 2017 would also not be possible without key contributions from administrators, notably Dr. Anne Egger, director of the Office of Undergraduate Research, and generous financial contributions from corporate and community sponsors, individuals, and academic and administrative units across campus.

I would be remiss if I did not express my gratitude to this year’s 21-member SOURCE committee—of faculty, staff, and students representing all areas of the university—coordinated by Jamie Gilbert. It is through these contributions that SOURCE is consistently regarded as among the preeminent events of its kind.

Again, welcome to SOURCE, our celebration of scholarly achievement. It is a celebration for which we can all be appropriate proud.

Sincerely,

James Gaudino
President
Thank You to Our Judges, Session Chairs, and Leadership Ambassadors

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Student Fashion Show

The CWU Apparel, Textiles and Merchandising program is proud to present THE FASHION SHOW, the 21st annual spring fashion show. Come see the latest trends featured in our ready-to-wear categories. Twelve 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 3, 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 24 at noon in the SURC Pit.

JUDGES:
Shari Girard – Program Manager at Avalara
Roger Girard – Partner, Founder, Board Member at Xecutive Advisory Partners LLC
Jim Becker – Founder, becker&mayer! and SmartLab Toys
Dr. Vince Bryan – Founder, Spinal Dynamics, Gorge Amphitheatre.
David Greenslade – Commercialization Manager, Pacific Northwest National Laboratories
Bill Provaznik – Director, CWU I4I
Musical Welcome

With the mentorship of Dr. John Neurohr in the Music Department, the CWU Northwest Trombone Octet will usher in the Fashion Show on the SURC Mezzanine. The award-winning members consist of Tenor Trombones: Jake Bean, Zane Boothby, Sascha Burckhardt, Kelly Grounds, Sam Howard, Zach MacLurg; Bass Trombones: Connor Donovan, Seth McAlister; Conductor: Levi Golan; and Guest Soloist: Dr. John Neurohr. They will be performing: Canzona Septimi Toni No. 2 (c. 1597), Giovanni Gabrieli (c. 1554-1612), Hymn to a Blue Hour (2013), John Mackey (b. 1973)

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. 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 outside the SURC Ballroom on the 2nd floor and in the 1st floor during SOURCE (in the hallway parallel to the food court – across from US Bank):

- ScholarWorks at Brooks Library
- McNair Scholars Program
- Washington State Opportunity Scholarship
- Center for Diversity and Social Justice
- Academic Service-Learning, Civic Engagement
- Academic Service-Learning Faculty Fellows
- CWU PULSE Magazine
- Office of Undergraduate Research
- Research & Professional Development Club
- United States Army Health Care Recruiting, Seattle
We Congratulate
All 2017 CWU SOURCE 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 pursuing degrees in STEM (science, technology, engineering and mathematics) and health care can receive up to $22,500 in college scholarship funding, mentorship and other valuable professional development opportunities.

2018-19 Application
Available January.
Learn more at waopportunityscholarship.org.
Don’t forget to vote for your favorite poster for SOURCE 2018!

http://www.cwu.edu/~source2017/
PULSE MAGAZINE

JOIN US AT SOURCE ON WED, MAY 17

1:20 PM - ROOM 201

“Evolving the Pulse Brand Online & Through Multimedia”
### PROGRAM AT A GLANCE – WEDNESDAY, MAY 17, 2017

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*Sessions in these rooms, along with the Keynote Speaker, will be live-streamed and recorded to facilitate viewing by online and center students.

**POSTER SESSION 1**
- Craft Brewing
- Cultural & Environmental Resource Management
- Family & Consumer Sciences
- Finance & Supply Chain Management
- Geography
- Health Sciences
- Physical Education, School Health & Movement Studies
- Public Health
- Science Education

**CREATIVE WORKS:**
- Art
- Apparel, Textiles, & Merchandising (Fashion Design)

This poster session includes Academic Service Learning projects.
### PROGRAM AT A GLANCE – THURSDAY, MAY 18, 2017

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<th>Time</th>
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**Anthony Washines in the SURC Theater**

*Sessions in these rooms, along with the Keynote Speaker session, will be live-streamed and recorded to facilitate viewing by online and center students.*

**POSTER SESSION 2**
- Biology
- Chemistry
- Environmental Studies
- Geological Sciences
- Ellensburg High School

**POSTER SESSION 3**
- Education
- Othello High School
- Yakama Nation Tribal School
- Wenatchee High School

**POSTER SESSION 4**
- Communications
- Education
- History
- Non-Profit Management
- Political Science
- Psychology
- Recreation & Tourism
- Sociology
- Undergraduate Research
- Women’s & Gender Studies

**POSTER SESSION 5**
- Anthropology & Museum Studies
- Engineering Technologies, Safety & Construction
- Geography
- Mathematics
- Physics
- Primate Behavior & Ecology
- Constructed Objects:
  - Engineering Technologies, Safety & Construction

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**POSTER SESSION 5**
- Anthropology & Museum Studies
- Engineering Technologies, Safety & Construction
- Geography
- Mathematics
- Physics
- Primate Behavior & Ecology
- Constructed Objects:
  - Engineering Technologies, Safety & Construction
Tuesday, May 16

SOURCE at the Des Moines Campus Higher Education Center (Building 29)
5:00 PM – 8:00 PM featuring keynote speaker, Dr. Anne McMahon

**Oral Presentation**
Lean Six Sigma Green Belt Certification and Practical Application of DMAIC Model Jason Stillman
*Mentor(s): Kun Liao, Business Administration*

**Poster Presentations**
A Comparison Study of Build-to-Stock and Build-to-Order Supply Chain
Jia Ryu, Aimee Schoonover, Annie Wu
*Mentor: Kun Liao, Finance & Supply Chain Management*

Build-to-Order Supply Chain
Mirzeta Isic, Katie Kennedy, Mawah Huang, DJ Elmer
*Mentor: Kun Liao, Finance & Supply Chain Management*

Empowering and Engaging Children in the Diagnostic Process: A Study of Art-based Assessment Y-Ngoc Pham
*Mentor: Liane Pereira, Psychology*

Exploring the Effects of Anonymity on Groupthink in On-Line Interactions Sean Kerr
*Mentor: Liane Pereira, Psychology*

Greenhouse Science Readiness Program Jara Bosmans, Madelynn Hill
*Mentor: Jamie Gilbert, Non-Profit Organizational Management*

The Impact of Globalization on Supply Chain Patrick Nana Kakmani, Ngoc Nguyen, Vi Nguyen
*Mentor: Kun Liao, Finance & Supply Chain Management*

Information Systems in Company: A Supply Chain Fred Desimone, Patrick Barrett, Chase Bradt, Madeleine De Vol
*Mentor: Kun Liao, Finance & Supply Chain Management*

Lean Six Sigma Green Belt Certification
Patrick Nana Kakmani, Chase Brandt, Aimee Shoonover, Jia Ryu
*Mentor: Kun Liao, Finance & Supply Chain Management*

Let’s Say We Met at the Library: Exploring Stigma of Online Dating Johnny La
*Mentor: Liane Pereira, Psychology*

The Mechanics of Ocean Acidification: An Inquiry Lab for Secondary Science Students Katie Simpson
*Mentor: Vanessa Hunt, Science Education*

Operation Efficiency and Quality Management of a Food-Chain Hung Nguyen, Desiree Marquez, Abdulkadar Musse
*Mentor: Kun Liao, Finance & Supply Chain Management*

Optimization of a Company
Anh Pham, Tyler Patton, Tung Vu
*Mentor: Kun Liao, Finance & Supply Chain Management*

Researcher as Research Tool: The Importance of Insider-Outsider Perspectives and Reflexivity in Qualitative Research Lori Molzan
*Mentor: Liane Pereira, Psychology*

Risk Management in Supply Chain
Brandon Dille, Selvana G Hobrial, Anamika Rana, Ahmad Assegaf
*Mentor: Kun Liao, Finance & Supply Chain Management*

Social Activity in the Elderly Community Miranda Anderson
*Mentor: Michael Mulcahy, Sociology*

The Social Perception of Maternal Acculturation and Depression in Asian Adolescents Linh Vu
*Mentor: Liane Pereira, Psychology*

Social Roles and Self-Concept in College Students: An Exploration of Identity Formation Annie Hill
*Mentor: Liane Pereira, Psychology*

A Wind Turbine Inquiry Investigation for Middle School Science & Engineering Brienna Agapov
*Mentor: Vanessa Hunt, Science Education*
Wednesday, May 17

Opening Event

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

Faculty Presentations

12:40–2:00 PM  Session 2:  Teaching Innovations  Chair:  Christopher Schedler  Room 140

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 the teaching innovations of faculty members to foster technology-enhanced teaching and learning through projects utilizing 3D Printing, Flipped Classroom, Streaming Media, and Online Service Learning. Faculty presenters will address project outcomes and impacts on student success, as well as offering practical tips on implementation, curricular connections, and transferability across disciplines.

Naomi Jeffery Petersen, “Expanding Accessibility with 3D Printing”
3D printing was used to produce Braille-embossed “tactile teachables” to include a student with visual impairment in a learning environment dependent upon visualization.

Michael Braunstein, “Flipped Math for Introductory Physics”
The Physics department has developed and piloted an online course intended to promote student success in introductory Physics courses, with principal student outcomes to apply specific math skills relevant to and in the context of Physics.

Steve Chrisman, “Streaming Media for Paramedicine Education”
Streaming media is used in both face-to-face and online classes to teach discrete skills, engage in formative/summative assessment, offer student feedback, and provide expert commentary.

Casey Mace, “Service Learning in the Online Public Health Classroom”
Initial findings will be presented from a pilot project being conducted by the Public Health program for online service learning.

2:10–3:30 PM  Session 8 Faculty Presentations  Chair:  Lacy Ferrell  Room 140

Lixing Sun, “It Pays to Wait: Upward Social Mobility Key to Long-term Sustainability of a Primate Society”

One of the most fundamental questions in behavioural biology is why societies can persist for a long period of time. While researchers in animal behaviour have been hindered by a lack of an aggregate measure (such as social mobility) to quantify the dynamics of animal societies, researchers in social sciences have been challenged by the complexity and diversity of human societies. As a result, direct empirical evidence is still lacking for the hypothesized relationship between social mobility and social stability. Here we attempt to fill the void by examining a much simpler society in the Tibetan macaque (Macaca thibetana), which we have tracked for 30 consecutive years. By testing two group-level hypotheses based on benefit-cost analysis and social stratification, we show the first quantitative evidence that an annual 2-to-1 stay/change ratio in the
hierarchy with a 3-to-1 upward/downward ratio in intergenerational social mobility provides a substantive expected benefit for adult members to stay in the group and wait for their chances to advance. Furthermore, using a Markov transition matrix constructed from empirical data, we demonstrate that the 3-to-1 upward/downward ratio could lead to long-term structural stability in Tibetan macaque society.


Embedded energy is the energy consumed in the production process for an object. Some products consume more energy than others as they are made, and have a higher embedded energy value. The embedded energy is a factor in Life Cycle Analysis (LCA), which can be used to rank the sustainability and environmental impact of objects made and consumed. The GREET Model for LCA from Argonne National Lab publishes and updates estimated values for the energy content of various materials. This presentation looks at the evolution of design of selected products and their packaging from the point of view of their embedded energy content based on the GREET model data. In reviewing that information, insight will be gained into choices that producers and consumers make that can reduce the Greenhouse Gas footprint, which is the primary factor driving climate change.

Ginny Blackson, “Core Voices: Indigenous Perspectives in Washington Educational Standards”

In 2015, the Washington State Legislature passed SB5433 requiring the Since Time Immemorial Tribal Sovereignty curriculum be taught in every public K-12 classroom. This new mandate provides both challenges and opportunities for educators. As part of the Brooks Library’s plan to meet this challenge, Ginny Blackson applied for and received the 2016 Smithsonian Libraries’ Neville-Pribram Mid-Career Educators Award. The award provided the opportunity to conduct research at the National Museum of the American Indian and Vine Deloria Jr. Library. This presentation will focus on the results of that research, resources to support the curriculum and the need to infuse indigenous perspectives across the curriculum.

Jan Byers-Kirsch, “Teaching and Learning in Hybrid or Online Courses: Strengths and Challenges”

Teaching university courses online or in a hybrid modality is becoming more popular yearly. This teaching method is cost effective and convenient for instructors and students, but is it the most effective modality for learning and teaching in all courses? This presentation focuses on the research-based factors contributing to strengths in online learning and teaching as well as the weaknesses, challenges, and opportunities from empirical research. Instructor and student perspectives and effective strategies using Canvas Learning Management System (LMS) are discussed based on converting three face-to-face (F2F) required teacher education courses to a hybrid and online format during one year.
Oral Sessions

Session 1: Cuba Panel: Scholars Without Borders sponsored by Africana and Black Studies
(this study abroad trip was a component of the Africana and Black Studies Research Seminar on Afro-Cuba and addressed specific academic outcomes)

Chair: Bobby Cummings Room 135

12:40 PM The Medical Practices and Beliefs
La'Shawnda Mason, Mariana Santana, Amanda Gilligan

1:00 PM A Revolution of the Mind: Critical Inquiries and Analyses of the Cuban Education System
Connor Simons, Carlie Adsero, Amanda Vanoy, Cina Bigelow

1:20 PM Cuban Voices: An Exploration of Individual Expression in Revolutionary Cuba
Presley Cheshire, Tai Jackson, Andreya Pro, Tawnya Holtz

1:40 PM Pathways to Freedom: Masculinity, LGBTQ, Law and Justice, Technology and Commerce in Cuba Today
Olivia Mitra, Oliver Hawks, Brooks Townsend, Keenan Williams

Session 2: Teaching Innovations – see page 18

Session 3: Understanding Culture Panel/ PULSE Magazine Chair: Lacy Ferrell Room 201

12:40 PM Understanding Culture
Jason Morales

1:20 PM Evolving the PULSE Brand Online and through Multimedia
Mandi Ringgenberg, Nicole Trejo-Valli, Vanessa Cruz, Simone Corbett, Jack Lambert

Session 4: Mathematics/Physics Chair: Cassandra Fallscheer Room 271

12:40 PM Football Statistics: Analysis of the Performance of the CWU Football Offense in the 2016 Season
Maritza Armstrong, Aaron Gogl

1:00 PM Statistical Analysis of the Affordable Care Act
Lisa Charron, Alicia Huegli

1:20 PM Vitamin D levels in Olympic Athletes with Spinal Cord Injuries
Jordan Rengen, Andrew Yoder

1:40 PM Image Analysis of in Vitro Movement of Microtubules
Brianna Owen, Jessica Carder, Erik Foss, Derek Ricketson, Howard Yeung

Session 5: Philosophy/Psychology Chair: Gary Bartlett Room 301

12:40 PM In Defense of Locke’s Experience: Why There Are No Innate Ideas.
Seth Hanke

1:00 PM Extravagant Evil: Do We Reap What We Sow?
Summer Aubrey

1:20 PM The Effects of Alcohol on Attraction
Marissa Farlow

1:40 PM Increased local and distant color distractor effects on Stroop task reaction times
Viktoriya Broyan
Session 6: Give Voice: Documentary on Twelve First-Generation College Women  
Chair: Joanne Perez  
SURC Theater  
12:40 PM Give Voice  
Jadvir Gill, Jocelyn Waite, Omar Manzo

Session 7: Law and Justice: Supreme Court Panel  
Chair: Teresa Divine  
Room 135  
Thou Shall Not Impersonate the Church  
Joseph Merrill  
Can You Plea to a Bad Law?  
Kayla Murphy  
Ineffective Assistance: A Matter of Life and Death  
Alexandra Yerigan  
Packingham v. North Carolina: A First Amendment Issue  
Jayde Kettner  
County of Los Angeles v. Mendez  
Scott Hoffman  
Class v. United States  
Michael Chavez

Session 8: Faculty Presentations – see page 18

Session 9: Geography  
Chair: Robert Hickey  
Room 201  
2:10 PM Land use Changes within the South China Sea: How these changes affect Geopolitical Tension in the Region  
Zac Schepp  
2:30 PM CWU Tripping Hazards  
Caleb Valko

Session 10: Physics  
Chair: Kathryn Temple  
Room 271  
2:10 PM Programming a Field Programmable Gate Array for coincidence counting  
Michael Brice  
2:30 PM A CHSH Test of Bell's Inequality  
Jeremy Klarich  
2:50 PM Demonstrating the Special Theory of Relativity  
Jacob Rothschild  
3:10 PM Designing a Cryostat for Low Temperature Condensed Matter Experiments  
Jacob Ferong

Session 11: Psychology  
Chair: Kara Gabriel  
Room 301  
2:10 PM Utilizing the Morris Water Maze to Investigate Changes in Learning and Memory in a Mouse Model of PCOS  
Raegan Nelson  
2:30 PM CWUPsy: An R Package  
Erik Ekberg, Michael Clark  
2:50 PM Mnemonic Devices: Which Promotes the Higher Recall of Concrete and Abstract Words?  
Sky Corby
3:10 PM Effects of a Growth Mindset Intervention on First-Year College Student Academic Performance
Sarah North Wolfe

Session 12: Human Rights and Literary Education  Chair: Paulus Pimomo  SURC Theater
2:10 PM Human Rights: Race and Rationality
Josh Aubol

2:30 PM Justice not Revenge: Ending Cycles of Oppression through Human Connection
Kayla Jeffress

2:50 PM Human Rights and Literary Education
Alisia Leyva
Poster Session 1  12:40 PM – 2:40 PM

Room 137A & B

1 Woman in Transition  Andrea Eklund
2 CWU Fashion Show  Jacob Perry
3 Floreale Revitalize  Daniel Franco
4 Tautua  Jesse Leaupepe
5 The Modern Peignoir  Jessica Pittington
6 Under SEAge  Amanda Fronckowiak
7 Blushing in Pink  Angela Kull
8 Orange Sanguine  Tavares DeLeon
9 Bel-Air  Joshua Perez
10 Valentina Maria Zepeda
11 Rooted In Confidence  Emily Martin
12 Enchantment Rose  Lauren Abrams
13 No Lemonade  Thomas Waldron
14 Exposure to Family Conflict in Early Childhood and Substance Use in Adulthood  Sonia Magana, Sarah Guel, Abbie Sandell, Alexis Springer,
15 Attachment Security and Depression and Anxiety in Adulthood: Mediating Role of Perceived Social Support  Natalie Porter
16 Madison Robbin, Kurtis Kelly, Kate Mead, Erin Rautenberg, Toni Perez
17 Support and Preparation for Graduation Amongst College Students  Margarita Cortez,
20 Rape in the Fields, a Literature Review  Ana Flores,
21 A Policy Analysis of the Puerto Rican Debt and Healthcare System  Meghan Johnson
22 Body Image and Social Media: The General Relationship  Lauryn Ormrod
23 Alcohol References in Music  Myrinda Wolitarsky, Tishra Beeson
24 Age-Specific Implications for Melanoma in Washington State  Madison Garci,
25 Impact of Chlamydia on Washington State  Alicia Ogren
28 Diet induced thermogenesis does not vary in healthy, male college students following consumption of an isocaloric meal comprised  Tucker Reiley, Kayla Thomas, Stephanie Crowe, Karen Roemer,
29 Effect of vitamin D supplementation on 25(OH)D status in elite athletes with spinal cord injury  Lauren Stark
30 Fluid Intake And Sweat Rate In Male Hot Yoga Participation  Cheri Bednarik
31 The Effects of Varying Amounts of Inulin Fiber on the Quality of Cakes Made from a Commercial Cake Mix  Lilly Jurado, Jennie Norton, Allison Taylor
32 Financial Asset (Stock) Valuation Analysis - AAPL  Grant Lawson
33 Assessing hop essential oil profiles for different boil lengths in Brewing  Martin Harris,
Contamination of Brewery Equipment *Austin Olson*

Analysis of Sensory Variations Among Top Fermenting Yeasts for the Production of a Dunkelweizen Ale *Tyler Watt*

Monitoring Reduction Efforts for PM2.5 in Ellensburg, WA, Using Community-Based Social Marketing to Examine Behavioral Change *Kelsey Gibbs*


St. Paul and Tacoma Logging Map No. 5 ca. 1920-1950 *Kayla Bass*

Banned from mapping: Analyzing OpenStreetMap user blocks to understand threats to crowdsourced data quality *Floyd Bull*

Evaluating ESRI Story Maps as a Vehicle for Teaching Cartographic Literacy *Trinity Turner*

UAV Photogrammetry: Structure from Motion Data Evaluation for Digital Elevation Model Generation *Gavin Schag*

Incorporating Worldwide Telescope Within a 5th grade Classroom *Sumiyyah Jalalyar*

Are we testing what we think is important? Alignment of questions in the New York State Regents Exams with Earth science literacy *Anthony Perez, Michael Alvernaz, Ryan Carrington*

Positive Revelations of the Guam Study Abroad Internship Experience *Roy Fraticelli*

Irish Eyes are Smiling: Perspectives of Learning to Teach Through a Service-Learning Experience in Ireland *Teresa Nevarez, Christina Moore, Erica Pratt, Stefan Ward, Teaching on Guam; Engaging in Field Experience (EFC 330) Paola Beltran*

Plinko Board: Integrating outrageous teaching aids into a service learning experience *Christina Moore*

Adult Attachment Style and Career Decision Making Self Efficacy *Mai Kaneda*

**Keynote Speaker**

**Scott Freeman: The Future of Environmental Learning**

Environmental Learning is at a crossroads. How do campuses and communities address the extraordinary environmental challenges of the next several decades?

Scott Freeman grew up in Wisconsin and received a B.A. in Biology from Carleton College in 1978. After working in environmental education and international conservation for six years, he did graduate work at the University of Washington on the molecular systematics and morphological evolution of blackbirds and received a PhD in zoology in 1991. He had a Sloan Fellowship to support a post-doctoral fellowship in molecular evolution at Princeton University, then returned to the University of Washington as Director of Public Programs at the Burke Museum. Since the mid-1990s his focus has been on textbook writing and teaching. He co-authored *Evolutionary Analysis* and was sole author of *Biological Science*, each through four editions; the texts are now in their 5th and 6th editions. He is currently Principal Lecturer in Biology at the UW, where he teaches introductory and upper-division courses and conducts research on how active learning techniques impact student performance. He is a recipient of a UW Distinguished Teaching Award.
Thursday, May 18

**Business Plan Competition – Session 14**  9:00 AM – 12:00 PM  Room 301

Finalists:  
Chris Ulrich – *Hawc*  
Tyler Strader – *Tracit*  
Eric Baumgardner – *Ellensburg Athletic Club*  
Monroe Whitman – *AirLotto*  
Junseo Lee – *Wildrone*  
Ernie Kilburn – *Gigglydoo*

**Oral Sessions**

**Session 13: Musical Performance**  Chair: Gayla Blaisdell  Music Building Recital Hall
9:00 AM J.S. Bach Art of Fugue Ct 1, Partita 2 Sinfonia  
*Sami Abdul-Wahid*
9:20 AM CWU Horn Ensemble performance at the 2017 Northwest Horn Symposium  
*Naomi Olson*

**Session 15: Primate Behavior**  Chair: Lixing Sun  Room 135
9:40 AM Collective decision making in Tibetan macaques: How followers affect the rules and efficiency of group movement  
*Amanda Rowe*
10:00 AM Response of three species of monkeys to caregiver use of species-specific behaviors  
*Lillian Stolar*
10:20 AM Social Structure And Dominance Hierarchy Analyses At Chimpanzee Sanctuary Northwest  
*Jake Funkhouser*
10:40 AM Science Master: A Film about Fieldwork  
*Erin Connelly*

**Session 16: Law and Justice**  Chair: Robert Claridge  Room 137A
Moved to Wednesday, Session 7

**Session 17: Economics**  Chair: Toni Sipic  Room 137B
9:40 AM Determinants of NFL Salaries: A Hedonic Regression Analysis  
*Tony Dykstra*
10:00 AM Oregon Cannabis Legalization Impacts on Washington State Cannabis Retail Revenues  
*Valerie Wells*
10:20 AM Market Structure of Cannabis Industry in Washington State  
*Diana Alvarez*
10:40 AM Cost-Benefit Analysis of Amazon Prime Air  
*Nathan Zuidema*
Session 18: Biology/Chemistry    Chair: Blaise Dondji    Room 140
9:40 AM Pre-concentration of Charged Species within Polyelectrolyte Microenvironments
   Camden Johnson
10:00 AM The Characterization of Coacervate Systems using Redox Sensitive Dyes.
   Caleb Kaiser
10:20 AM Toxic Effects of Buckminsterfullerene (C<sub>60</sub>) on Mouse Hepatocytes
   Juan Flores
10:40 AM Impacts of Wildfires on Rattlesnake (Crotalus oreganus) Growth and Movement in Washington State
   Joseph Chase

Session 19: Computer Science    Chair: Razvan Andonie    Room 201
9:40 AM Advanced features for an Online Recruitment Management Software
   Sadia Afroze
10:00 AM Data Augmentation for Gender Classification
   Dmytro Dovhalets
10:20 AM High-Performance LR Parsing
   Gabriel Ratener
10:40 AM Time Series Analysis
   Sanjita Timillslina

Session 20: Leadership Studies    Chair: W. Michael Phipps    Room 271
9:40 AM Why the Captain Must Go Down With The Ship
   Tucker Andis
10:00 AM Air Force Field Training Analysis
   Brendan Crouse, Karl Watson
10:20 AM Resiliency in Leadership
   Matthew Cullum, Ryan Phillips
Session 21: American Sign Language  Chair: Jer Loudenback  Ballroom A
9:40 AM "Feast Your Eyes": Individual Works Using Creative Use of Signs

ASL 301

ABC Stories
1. Lacey Goldsby – “Fishing”
2. Kelly McKenzie – “A Day at the Beach”
3. Ariana Cooks – “Struggles of Camping”
4. Veronica Benavides – “Homerun”
5. Brittany Lancaster – “Living with a Dog”
6. Bailee Rogers – “Rollercoaster Ride”

Handshape Stories
1. Amanda Huffstetler – “Kayak”
2. Kendall May – “Forest Walk”
3. Megan Courter – “Sword Fight Competition”
4. Sarah Compton – “The River” (as suggested by Jer)
5. Austin Lowell – “Finding a Christmas Tree”

Number Stories
1. Bailee Rogers – “Morning Routine”
2. Selena Addison – “Awkward Date”
3. Austin Lowell – “Bunny & Snake”

ASL 253

“The North Wind and the Sun”
Narrator: Nancy Hall
Voice Reader: Kylie Hendrix
North Wind: Jacob Schafer
Man/Person: Mary Murote
Sun: Makenna Tipps

“The Ox and the Frog”
Narrator: Sarah Hie
Voice Reader: Cassie Bowen
Little Frog: Stephanie Hanna
Big Frog: Sam Campion

“The Council of Mice”
Narrator: Saida Mendoza
Voice Reader: Erin Riley
Young Mouse: Lindsey Colwell
Old Mouse: Jared Klingel
Mouse: Annelise Rew
4. Megan Courter – “Backpacking”  
5. Lacey Goldsby – “Deer Hunting”  

**ASL 301**

**ASL Poetry**
2. Lacey Goldsby – “Growing up in the Country”  
3. Amanda Huffstetler – “Creepy Cabin”  
4. Brittany Lancaster – “School Year”  

**Visual Vernacular**
1. Amanda Huffstetler – “Happy Dog”  
3. Sarah Compton – “Moving from Home”  

**Iconic Representative**
1. Bailee Rogers – “Coffee”  
2. Kelly McKenzie – “Flag”  
3. Megan MacArthur – “Rabbit”  
5. Sarah Foy – “Breakup”  
6. Megan Courter – “Timber”  
7. Selena Addison – “Storm Cloud”  
8. Ariana Cooks – “Graduation”
Session 22: Film and Video Studies  
Chair: Melissa Johnson  
SURC Theater  
9:40 AM The Sopranos in the Workforce  
*Madeline Lootens*  
10:00 AM Collage Chapter II  
*Shay LaPierre*  
10:20 AM The List  
*Morgan Bedard*  
10:40 AM Sam&Alee  
*Madeline Lootens*

Session 23: Primate Behavior and Ecology  
Chair: Lori Sheeran  
Room 135  
11:10 AM Family Dynamic in Four Species of Captive Gibbons  
*Alexandra Sheldon, Gabriella Skollar*  
11:30 AM Mother-infant proximity in a wild group of Southern pigtailed macaques (*Macaca nemestrina*)  
*Emily Dura*  
11:50 PM Comparison of semi-captive and wild gray-shanked douc langurs' (*Pygathrix cinerea*) substrate use  
*Hilary Hemmes-Kavanaugh*

Session 24: Law and Justice  
Chair: Chuck Reasons  
Room 137A  
11:10 AM Learning From Failure: How Breaking the Cycle Can Be Used To Improve Future Programs  
*Judah Bergeron*  
11:30 AM It is About More Than Bathrooms: Washington State School Policies  
*Maddie Crisman*  
11:50 AM A Survey Regarding the Objective Reasonableness Standard  
*Dalton Cannon*

Session 25: Economics  
Chair: Toni Sipic  
Room 137B  
11:10 AM Determinants of NBA Salaries: A Hedonic Regression Analysis  
*Chris Scott, David Vargas*  
11:30 AM Forest Timber Practices in Western Washington Forest: A Real Estate Hedonic Analysis  
*Kaleb Javier*  
11:50 AM Economic Valuation of Mass Wasting Risk in Western Washington  
*Sarah Pratt*  
12:10 PM Determinants of Western US Recreational Cannabis Prices: Evidence from Leafly.com  
*Kenneth Zummach*

Session 26: Biological Sciences  
Chair: Blaise Dondji  
Room 140  
11:10 AM The Effect of an Over the Counter *Echinacea* Extract on Macrophage Function  
*Naomi Bryant, Catherine Treichel*  
11:30 AM Antibody dependent enhancement of visceral leishmaniasis  
*Alan McNolty*  
11:50 AM Prevalence of Lyme Disease and Rocky Mountain Spotted Fever in the Tick Population of
Kittitas County

Jaegger Olden

Session 27: Computer Science       Chair: Szilard Vajda       Room 201
11:10 AM Visualization of Pareto Frontier in Multi-Objective Optimization
   Jacob Brown
11:30 AM Visual Representation and Pattern Discovery in n-Dimensional Data
   Dmytro Dovhalets
11:50 AM Pattern Discovery in Collocated Paired Coordinates and Shifted Paired Coordinates
   Abdulrhman Gharawi
12:10 PM Combining machine learning techniques to improve accuracy in cancer diagnostics.
   Syeda Sadiya

Session 28: Leadership Studies     Chair: W. Michael Phipps       Room 271
11:10 AM Why Is Motivating Your Subordinates so Difficult?
   Jordan Kent
11:30 AM The Mission, The Men and Me
   Nichoals Lawson, Austin Shirey
11:50 AM Transformational Leadership: Transforming the US Military for the Modern Era
   William Leshley

Session 29: English             Chair: Bobby Cummings       Ballroom A
11:10 AM The Emergence of the Feminist Fatale in American Film Noir
   Anne Dennon
11:30 AM Hemingway’s Masculine Performance: Failed Machismo as the Source of Emasculation in American Men
   Mary Killeen
11:50 AM Fairy Tales & Gender
   Megan Epperson
12:10 PM Grieving Through Poetry
   Megan Epperson

Session 30: Engineering         Chair: Greg Lyman       SURC Theater
11:10 AM Design, Construction and Analysis of an Automated BBQ Pit
   Bret Simpson
11:30 AM A brief introduction to quantum computing from the perspective of ladder logic
   Jerry Kensler
11:50 AM Implementing Signed and Unsigned RSA Encryption in C
   Thomas Lackie
12:10 PM Design, Construction, and Analysis of an Automated Greenhouse
   Kristen Varnier

Session 31: History             Chair: Roxanne Easley       Room 135
12:40 PM Fake Science: Vavilov’s Persecution in Stalin’s Manipulated Reality
   Sophie Andarovna
1:00 PM The Volga Germans: 1917 to 1941

*Thomas Hull*

1:20 PM The Breakup of the Soviet Union and Russia's Foreign Policy

*Anna Morris*

1:40 PM The Cheka’s Role in the Russian Revolution and Beyond

*Rane Tenerelli*

**Session 32: Political Science**  
Chair: Sigrid Davison  
Room 137A

12:40 PM Montes & City of Yakima: Challenge to the At-Large Electoral System

*Cruz Juarez Delacruz, Elvia Verduzco Negrete, Babacarr Secka, Giovanni Severino, Eric Torres-Marquez*

1:00 PM The Rising Star: A New Contender in French Politics

*Jacob Durrance*

1:20 PM Separating Fake News & Real News

*Miles Isom*

1:40 PM The case of effective regional comprehensive plans in Hood River County with regards to a water bottling plant

*Erik Livingstone*

**Session 33: Economics**  
Chair: Toni Sipic  
Room 137B

12:40 PM Buddhist Business

*Hideki Takei*

1:00 PM Stock Market Event Study Analysis of Expedia and Orbitz Merger

*Courtney Colt*

1:20 PM Economic Impacts of Cougars in Western Washington

*Todd Stoothoff*

1:40 PM Economic Viability of Residential Solar Systems vs. Grid-tied Electricity Over Time

*McKayla Bailey*

**Session 34: Biological Sciences**  
Chair: Erin Craig  
Room 140

12:40 PM Western Spruce Budworm Herbivory Increases Through Fall Nutrients but not Litter Decomposition Rates

*Izak Neziri*

1:00 PM Salmonids in an Urban Stream: Movement, Habitat Use and Potential Movement Barriers

*Connor Parrish*

1:20 PM Analysis of Abiotic Factors Influencing the Rate of Metamorphosis in the Great Basin Spadefoot Toad, Spea intermontana, in Easte

*Corey Brumbaugh*

1:40 PM Utilization of a Predictive Model of Spea intermontana: Implications for Survey and Management of Cryptic and Endangered Species

*Corey Brumbaugh*
Session 35: Computer Science  Chair: Jackie Krause  Room 201
12:40 PM Pocket Pantry
Alicia Bradley, Conakry Coggins, Bryan Martinez
1:00 PM Automatic Traffic Sign Detection and Recognition
Yishui Liu
1:20 PM Scheduling of Multiple Graduate Assistants by Preferences
Aaron Ritter, Michael Githinji, Matthew Petroske, Samuel Juozapaitis
1:40 PM Tricode's Food Order
Noel Rodriguez, Weston Anderson, Taban Cosmos, Alexander Gow

Session 36: Leadership Studies  Chair: W. Michael Phipps  Room 271
12:40 PM Leadership Analysis of Napoleon Bonaparte
Hudson Sims
1:00 PM Ronald Reagan
Rylee Stewart, Ryan Johnson
1:20 PM The Making of a Leader
Adam Wasserstrom

Session 37: Manastash Showcase  Chair: Xavier Cavazos  Room 301
12:40 PM Manastash Showcase
Amanda Gilligan, Connor Simons, Gabriela Osorlo, Jampa Dorje, Jason Days, Megan Epperson, Oliver Lewis, Patrick Carpenter, Rene Santana, Ruby Nambo, Samantha Robinson, Sarah Miles

Session 38: English  Chair: Stella Moreno  Ballroom A
12:40 PM Life at Sea
Jennifer Marsh
1:00 PM Asylum Power Relations: The Opal and Poe’s “The System of Doctor Tarr and Professor Fether”
Lexi Renfro
1:20 PM Protestant Identity and Iconoclasm as Nationalism in Shakespeare's Richard III
Bridget Bartlett

Session 39: Engineering Technologies, Safety and Construction  Chair: Greg Lyman  SURC Theater
12:40 PM Active Learning: Increasing Construction Management Students’ Technical and Managerial Competencies through Concrete Formwork
David Martin
1:00 PM Active Learning and Construction Negotiations
David Martin
**Session 40: History**  
Chair: Roxanne Easley  
Room 135

2:10 PM “Everything is Going According to Plan”: KGB Oppression of Soviet Punk Rock
*Elizabeth Seelye*

2:30 PM The Masculinities of Man in Mexican Cinema
*Omar Manzo*

**Session 41: Public Health/Non-Profit Management**  
Chair: Melody Madlem  
Room 137A

2:10 PM Culturally Competent Sexual Health and Infectious Disease Prevention Education for Young Black Men Who Have Sex With Men (MSM)
*Kelly Cronic*

2:30 PM Sexual Assault Reporting: The Legal Framework and Washington State School Policy
*Taylor Boteilho*

2:50 PM Analysis of the Representation of Black Women and Positive Body Image Based Non-profits
*Miraclejoy Curtis*

3:10 PM Mentorship: The Key to the Ultimate Higher Education Experience
*Meghan Gilbert, Madelynn Hill*

**Session 42: Finance and Supply Chain Management**  
Chair: Thomas Tenerelli  
Room 137B

2:10 PM Using Lean / Six Sigma Ideologies to Reduce Lead Time
*Scott Dean, Jonathan Holzberger*

2:30 PM Stock presentation of Diana Shipping and BHP Billiton
*Seth Green*

2:50 PM Stock Analysis on United Parcel Services
*Kylle Robertson*

3:10 PM Stock Evaluation in a Risky Environment using Discounted Cash Flow Analysis
*Raine Tenerelli*

**Session 43: English: Alfred Hitchcock**  
Chair: Liahna Armstrong  
Room 140

2:10 PM Blonde / Brunette: Female Doubling in Rebecca, Vertigo, and The Birds
*Anne Dennon*

2:30 PM A Snow-Covered Volcano: The Film of Grace Kelly with Alfred Hitchcock
*Camille Borodey*

2:50 PM Portraiture as the Uncanny in Alfred Hitchcock
*Kayla Jeffress*

3:10 PM Tic-Toc: Alfred Hitchcock’s Manipulation of Traditional Temporal Architecture
*Alexis Renfro*

**Session 44: Cultural and Environmental Resource Mgmt**  
Chair: Patrick Lubinski  
Room 201

2:10 PM Fracked Perceptions: Perceptions of Economic, Ecological, and Socio-Cultural Aspects of Fracking among Residents of Dimock, PA.
*Brian Straniti*

2:30 PM Vertebrate Faunal Remains from the Anderson Creek Site (45KP233)
*Robert Holstine*

2:50 PM Paradigmatic Lithic Classification at Different Site Types on the Slopes of Mount Rainier
*Caitlin Limberg*
3:10 PM Water Demands, Adaptive Capacity, and Drought: An Analysis of the Upper Klamath Basin, Oregon and California
   Tricia Snyder

Session 45: English      Chair: Mindie Dieu      Room 271
2:10 PM Teacher Authority: How Do They Do It?
   Zachary Dalton
2:30 PM Final consonant devoicing in Czech learners of English: A perception-based analysis
   Victoria Zencak
2:50 PM Figuring Out Which Phrasal Verbs to Teach: An Analysis of Phrasal Verb Presence in ESL Textbooks
   Victoria Zencak

46: Education      Chair: Yukari Amos      Room 301
2:10 PM Changing the Tune of K-8 Social Studies Instruction
   Marcus Ray
2:30 PM (Mis)reading different cultures: Interpreting international children's literature from Asia
   Janet Chen, Jordan Piano
2:50 PM CWU VEX Robotics Global Outreach
   Jennifer Wilson, Stevie Noble, Brendan King
3:10 PM Building on the Accessibility of Tactile Learning Materials
   Nicole Johnson

47: Music      Chair: Gayla Blaisdell      Ballroom A
2:10 PM Approximation and Identity: Appropriation in the Music of George Crumb
   Holly Chapman
2:30 PM Music Around the World: Korean Pop Music
   Aaliyah Barnes
2:50 PM Florence Price: Life and Legacy of an American Composer
   Matthew Shreve
3:10 PM The Letter Scene from Verdi's Falstaff
   Amanda Baggett
3:30 PM Opening Scene from Old Maid and the Thief by Gian Carlo Menotti
   Tatiana Kruse, Jessica Reid, Aly Henniger

48: World Languages and Cultures/Theatre Arts/Dance      Chair: Stella Moreno SURC Theater
2:10 PM Can English Speakers Eat Tapas?: Considering Perspective in Approximating Octavio Paz's "El Sediento" in English
   Patrick Carpenter
2:30 PM Benefits of Bilingualism and Biculturalism in an Academic Setting
   Jessie Ocampo, Amairani Martinez, Diana Sullivan

2:50 PM Prosthetics and Props in the World of Theater and Cosplay
   Jackson Berhow
3:10 PM No Gods, No Masters
   Michaella Swinhart
**Poster Session 2  8:00 AM – 9:45 AM**

1. **The Influence of Vitamin A Supplementation on Immunosuppression by Mycophenolate Mofetil in Mice.** Brooks Waite
2. **Development of Software for Genome Sequence Analysis** David Farr
3. **Impact of Berberine Concentration on MCF-7 Breast Cancer Cell Growth Rate** Julia Bramstedt, Nathan Fletcher
4. **Effect Of The Phthalate, Benzybutylphthalate (Bbzp), On Neuron Viability Using Neuro 2a Cells** Veronica Hernandez, Natalie Bergstrom, Hannah Dowdell
5. **Examination Of Effects On St. John’s Wort Extract On Locomotory Behavior In C. Elegans** Janie Aguilera
6. **Metabolic and morphological changes in NOD and 129 Mice Models of PCOS** Amanda Ladner, Danielle Peecher
7. **Western Spruce Budworms Stimulate Community Respiration Via Organic Carbon Inputs** Natalie Levesque
8. **Ex Vivo Evaluation Of Antiparasitic Potentials And Toxicity Of Dalea Spp. (Plantae, Fabaceae) Against The Hookworm Ancylostoma Ceylanicum And Mammalian Cells** Kiah Jones, Lindsay Engels
9. **The Anthelmintic Properties of Pure Compounds of Plant Origin** Victoria McPherson,
10. **Estimating Dispersal Time for American Pika (Ochotona princeps) to Colonize Wildlife Crossing Structures on I-90** Jordan Ryckman, Anna Hood
11. **Protein and Biomass Analysis of Microgreen Crops Grown Under High versus Low Light Intensity** Jessica Scott
12. **The Effects of Hurricane Patricia on Lizard Species in the Chamela Biological Reserve** Jennifer Magana, Trina Byers, Jessica Low
13. **Hurricane Patricia’s influence on understory microhabitats in a tropical dry forest in Mexico** Taylor Henne, Stacey Meekhof, Malena Niece
14. **Foraging Trail Substrate Preferences of Atta mexicana in the Human Altered Tropical Dry Forest** Jaelle Downs, Katie Boyd
15. **Relation of log jams and channel sinuosity in the tropical deciduous forest, Chamela, Mexico** Cameron Cupp
16. **Ticks of the Dry Tropical forest of Coastal Jalisco in the dry season** Cortnea Austin, Samuel Gutierrez, Lilly Nava
17. **SOBRE Mexico - Student Opportunities for Biological Research in Mexico** Dan Beck, Gabrielle Stryker, Alison Scoville, Kristina Ernest
18. **Gardens for Homeless Shelters** Hadli LaValley, Elle Larson
20. **Black Carbon around Ellensburg High School** Langdon Ernest-Beck, Zach Gabriel, Aidan Gallagher, Nils Melbourne, Caleb Rosen
21. **Reecer Creek Fall 2016 Plant Survey** Aidan Gallagher, Caleb Rosen
22. **Water: Clean and Simple** Owen Canterbury, Tamzen Shissler
23. **Black Carbon Elevation Profile** Owen Canterbury, Amanda Farris, Sten Mathis, Paul Messier, Conor Montgomery
Skyline of the Future *Henry Donahue, Langdon Ernest-Beck, Elliot Hougardy, Luke Michel, Aaron Rosser*

Analysis of Sediment Size in Reecer Creek *Macartney Brunson, Joel Graham, Sten Mathis, Conor Montgomer*

Spatial Distribution of Black Carbon around Ellensburg *Macartney Brunson, Ellory Ferris, Eliza Glenn, Joel Graham, Laura Johnson*

Woodstoves, Fuel, and Air Pollution *Shayla Nunn, Reyna Schedler, Tamzen Shissler*

Improving Campus-Wide Land Use Practices To Support Native Plant And Pollinator Populations *Maya Ledbetter*

The Effects of Lead Acetate Exposure on the Immune System *Catherine Treichel*

Oil Spills in the Marine Environment *Kristin Talbott*

Inaccessible Water *Nathan Schepker*

Can Fishing Regulation Solve the Bycatch Problem? *Hannah Sikorski*

Preservation Plan for Alpine Lakes Wilderness *Paul Hartl*

The Relationship between Forest Fires and the Palmer Drought Severity Index *Dane Anderson*

Carbon tax proposal for greenhouse gas emissions *Emily Engel, Kamal Qteishat*

Subsidizing Industrial Solar Projects *Sam Ellinger*

Miocene dextral slip history along the Gumdrop Hills fault, central Walker Lane, Nevada *Camille Mayberry*

Calculating Vertical Offset of the Borah Peak Fault Scarp Using Contemporary Digital Methods *Daniel Mongovin*

Metamorphic Evolution of a Kyanite Eclogite, North Qaidam, Western China *Miranda Lehman, David Hernandez Uribe*

Characterizing the Building Vibration in Science Phase II and its impact on the use of the Scanning Electron Microscope *Hanna Elston*

Giant Plagioclase in the Steens Basalt, SE Oregon: Open-system Processes in Flood Basalt Magmas *Conner Toth, Mikkel Louis,*

Thermodynamic Computer Modeling Constraints on the Magma Storage System with the Steens Basalt, SE Oregon *Mikkel Louis, Conner Toth*

Effect of Slope on the Mima Mounds on Manastash Ridge, Washington *Wilson Rawlings*

Investigation of Anomalous Sand Deposits in Joseph Whidbey State Park Using Diatom and Sediment Analysis *Clairissa Delavergne, Jasmine Bates, Sarah Olden*

Do Elevated Levels of Glutathione Decrease the Toxicity of Plasticizers in Mouse Live Cells? *Khatoon Albahri*

Water Quality Bridges Underrepresented Minorities to their Cultural and STEAM Identities *Bryan Plankenhorn*

Development of an Improved Spot Test for Detection of Cellulose Acetate in Museum Samples *Antonio Moreno*

Cleaning of Plastic with Gellan Gel *Shiya Lin*

Using Yeast Two-Hybrid to Test the Interactions of Emx2 with QKI-5, QKI-6, and QKI-7 *Susana Camacho Plascencia*

Photochemical reactions of soot in various environmentally representative scenarios *Justin Rodriguez*
Dithiothreitol (DTT) as an assay for determining the oxidative capacity of particles
Juan Rodriguez

Decrease in Acid Rain over 26-year study at Paradise, Mt. Rainier National Park
Ashleen Reddy

Testing Local Drinking Waters for Trace Metals
Stephen Bradford

Catalytic Activity of Ir Clusters and Au-Rh Clusters toward Ethane Dehydrogenation
Hao "Joseph" Jiang

1,3-Dihydro-1,3-azaborine as Potential HIV-1 Protease Inhibitors
Katherine Norris, Seirra Hoover, Rob Rodriguez

Toward the Synthesis of Cyclic 1,3-Azaborines as Potential HIV-1 Protease Inhibitors
Edward Magner, Michael Frank

Effects of Ca2+ on the optical properties of YBO3:Eu3+
Laura Steiner, Kels Caske

Diastereoselective synthesis of 3,3,5,6-substituted-2-piperidinones by lactam-selective
enolate alkylation of valerolactamoyl
Emily O’Claire

Rapid access to vicinally functionalized tertiary propargylic lactamoyl alcohols and their
synthetic applications
Monique Khim

Expanding the scope of the Castagnoli-Cushman reaction: The case of 1,3-azanynes
Katie Hovenkotter, Megan Bauder

Modular and Cutting-edge Access to Polycyclic Lactams by Direct Annulation of Cyclic α-
Chloro Eneformamides with Enolizable Cyclic Anhydrides
Joshua Goodsell, Spencer Langevin

Heteroatom-dictated regiodivergent functionalization of CastagnoliCushman-derived
lactamoyl esters with vinyl Grignard reagents
Omar Farah, Muhannad Rabah

One-pot N-alkylation, ketonation and C-enolate alkylation of readily affordable γ-amido
esters
Jadesha Brooks, Emily O’Claire

Synthesis, Reactivity, and Biological Activity of Novel Vicinally-Functionalized Piperidines
Hannah Braunstein

Diversity-oriented synthesis of macropoly cyclic scaffolds using enynyl alcohols
Andy Basargin, Jonathan Adamson

Time-honored access to fictionalized caprolactams and homopiperazinones by one-
carbon homologation of Castagnoli-Cushman-derive
Kaitlyn Backer, Taylor Keller
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<td>Michael Cloud</td>
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<td>The Manson Family Murders: August 8th, 1969</td>
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<td>Rape and Assault among Indigenous Women</td>
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<td>Tutankhamun: The Boy-King</td>
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<td>The Effect of Higher Levels of Atmospheric Carbon Dioxide on the Growth of Brassica Rapa</td>
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<td>More Weight or More Reps?</td>
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<td>The Correlation of Blood Pressure and Heart Rate with Stress</td>
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<td>Do carbon dioxide levels affect the rate of photosynthesis in the quercus tree?</td>
<td>Patrick Azevedo</td>
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<td>Music effect on our memory</td>
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<td>The Role of Carbohydrate Content on Hamster Behavior</td>
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<td>The Science of Snoozing</td>
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<td>What component of a standard NPK (Nitrogen Phosphorus Potassium) fertilizer has the greatest effect on plant growth.</td>
<td>Jane Christensen, Samantha Lewis, Miguel Marquina</td>
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<td>How does adding different substances (saltwater, olive oil, vinegar) affect the growth of Chlamydomonas?</td>
<td>Emma Crowe, Nestor Torres</td>
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<td>The most wonderful things about rattlesnakes.</td>
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<td>The effect parental guidance have on students academics</td>
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<td>Quantifying the Effects of Temperature and pH on Protein Denaturation</td>
<td>Jenessie Gonzalez, Jamilah Garza, Maria Corona</td>
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<td>How does the type of light affect the reproduction output of Chlamydomonas?</td>
<td>Parker Hair, Lauren Marvin</td>
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<td>How color affects ones perception in taste</td>
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<td>How does different temperature affect the population of the chlamydomonas?</td>
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<td>Hamsters: Spatial memory vs vision</td>
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<td>How do different type of lights (sun, artificial, and grow lights) effect chlamydomnas population.</td>
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34 The effect of water pH on the rate of photosynthesis of a spinacia oleracea. David Maldonado, Cassandra Gonzalez, Bianca Cruz
35 Quantifying the Salinity Resistance of Brassica Rapa Steven Ochoa, Marcelo Madrid
36 The Effects of Sleep Deprivation on Brain Function Shaya Parrish, Clarissa Martinez, Mia Perez
37 How does iodine, glucose and salt affect chlamydomonas? Paris Pfiefle, Jesus Arellano, Daniela Alpire
38 Prolonging the Life Expectancy of a Plant Jycee Rodriguez, Liddell Giles
39 Decontaminating water with three common purification methods Jorge Rodriguez, Daniel Martinez, Thomas Ramirez
40 How do the different types of lights (orange green purple blue and normal lighting) affect the population of chlamydomonas? Ivy Sehorn
41 Water purification methods effectiveness and feasible cost analysis Lane Simpson, Georgia Bunch
42 The Effects of Cannabis On The Human body & Environment Naataanii Singer
43 The Effect of Different Macro-molecular Energy Sources On the Mass of Rodents. Taylor Taft, Cecil Hoksbergen, Brianne Kent
44 Effect of Watering Methodology on Plant Growth. Andrew Velazquez, Isaiah Perez
45 How does temperature affect different strains of chlamydomonas? Lucinda Wright, Brittany Martinez, Marcus Jackson
46 How do artificial light sources affect the growth of dandelions? Emmanuel Atilano, Stacie Serna, Adrian Valencia
47 Feasibility of Complete Plant Independence of Animals and Microorganisms Carter Freeman, Bridger Lawson, Elijah Roylance
48 The Effect of pH on the Growth and Development of Zinnia Plants Maya Jones, Alyssa Freeman, Alexis Simmons
49 Physical educator analysis of 10 children books Greg Eagle
50 Future Special Education Teacher Analyzes Children’s Books who have Children with Exceptionalities Morgan Schumacher
51 A future 3rd-grade teacher’s analysis of bias in ten books Peyton Allen
52 A Future High School PE Teacher’s Analysis of Bias in 10 Books about Health Kailyn Berry
53 Future 3rd-grade teacher analyzes books for biases Maddie Bogart
54 A future math teacher’s analysis of bias in ten books Dylan Boyd
55 A Future English/ Language Arts Educator’s Analysis of Bias in Ten Books Jess Busig
56 A future second grade teacher’s analysis of bias in ten books Emma Camarata
57 A future health teacher’s analysis of bias in books about health Anastasia Campbell,
58 A future English teacher’s analysis of bias in ten book Malia Caswell
59 Future secondary mathematics teacher: Ten books on diversity Jessica Cole
60 A future 2nd grade teacher’s analysis of bias in ten books Jessica Cook
61 A future 2nd grade teacher’s analysis of bias in ten books Katie Doneen
62 Future Early Childhood Teacher’s Analysis on Diversity in Children’s Books Taylor Duncan
63 A Future Social Studies Teacher’s Analysis of Bias in 10 History Books Ashley Ells
64 A Future Music Educator Analyzes 10 Books for Bias William Eshleman
65 Central Washington University SOAR and MOSAIC GEAR UP Corey Brumbaugh
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<td>Felycite Guerra, Sarah Gosen</td>
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<td>Anessa Boyer</td>
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<td>Affective and Cognitive Components of Regret: Forecasting Errors and the Impact of Anticipated v. Experienced Regret on Well-Being</td>
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<td>Engaging Undergraduate Students in Research: The Underrepresented Student Perspective</td>
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<td>Importance of Inclusivity in Undergraduate Research</td>
<td>Dylan Gilbert, Kristin Talbott, Meghan Gilbert</td>
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<td>NACNA Traditional Ecological Knowledge (TEK) Food Gathering Program</td>
<td>Christina White, Anessa Boyer</td>
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26  Expansion of CWU’s Presidents United to Solve Hunger Program (PUSH) to University Center Campuses JL Hopkins
27  Dice Master Games Jason Galletly
28  Public Education and Free Market Forces: Assessing the Outcomes of Charter Schools and Voucher Programs Rachael Pierce
29  Factors impacting Latino/a students’ performance on the WEST-B writing test. Viridiana Ortiz
30  A Future Middle School music educator's analysis of 10 books about families Holly Trinnaman
31  Future 2nd grade teacher analysis of ten books on families. Courtney Qualls
32  Future Chemistry teacher's analysis on biases in ten books about science Jose Mondaca
33  A future 1st grade teacher's analysis of bias in ten books Taylor Walker
34  A future P.E. teacher's analysis of bias in books about health and physical education Cody Vela
35  A future early childhood educator's analysis of ten books about families Jasmine Valentine
36  A Future English Teacher’s Analysis of Diversity in 10 Books Angelina Valdez
37  A future P.E. teacher's analysis of 10 books about different styles of physical activity Dennis Stewart
38  A future first grade teacher's analysis on bias in ten books Daria Stankevich
39  A future Health teacher's analysis of bias in books about health Megan Socall
40  A Future First Grade Teacher Analyzes Ten Different Books Ashley Scott,
41  A future physical educator reviews ten books for bias Andy Schmidt
42  A Future 3rd Grade Teacher's Analysis of Bias in 10 Books Iliana Sanchez
43  A future 3rd Grade teacher's analysis of ten books about overcoming obstacles. Ruby Rodriguez
44  A Future Music Teacher's Analysis of Ten Books About Music Erik Poehlman
45  A Future Kindergarten teacher's analysis of bias in 10 books Rica Paraiso
46  A Future Elementary Teacher's Analysis Of Diversity In Ten Books Kaley Omlin
47  A future P.E. teacher's analysis of bias in books about health Teresa Nevarez
48  Future special education teacher's analysis of bias in ten books Erica Munden
49  A future P.E. teacher's analysis of bias in books about health Christina Moore
50  Future first grade teacher analyzing books about family Jacie McDaniels
51  A future Biology teacher's analysis of bias of ten books Matthew McCloud
52  Future Secondary English Teacher: Ten Books on Diversity Michael Marquiss,
53  A future elementary educator analysis of agriculture workers Gorge Lara
54  A future special educator's analysis of bias in ten books Meredith Lanthorn
55  Future School Teacher Analysis of Bias in Ten Books Chase Kairis
56  A future physical educator’s analysis of ten bias books Mitchell Hipp
57  A future Special Education teacher's analysis of bias in ten books Taylor Hedges
58  A Future Early Childhood Educator’s Analysis of Bias in Ten Children's Books Rosie Harbaugh
59  A future elementary teacher's analysis of bias in ten books Maryellen Hammrich
60  A future 4th grade teacher's analysis of bias in ten books Sarah Gilliam
61  A Choral teacher's Analysis of Bias in Ten Books Mary Filicetti
62  A Future Teacher Analyzes Ten Books for Bias Randi Tuggle
Poster Session 5  2:15 PM – 4:00 PM

1. Stationary bike generator system *Rakan Alghamdi*
2. Stationary Bike Generator System *Abdullah Alsuhaim*
3. Tensile Specimen Punch *John Allen*
4. Prosthetic Artificial Muscle *Sydnee Johnson*
5. Re-Design to E-Nable *Sydnee Johnson*
6. Design, Construction and Analysis of a Vertical Axis Wind Turbine (VAWT) Prototype *Bilal Abubakar*
7. Designing Teaching Modules for the Mitsubishi 6-Axis Robotic Arm Educational System *Christopher Sands*
8. Instant Hot Water Heater *Hunter Arnold*
9. Composite Cold Expansion Tooling *Andrew Amos*
10. Sliding frame device for hydraulic lifting cart *Phuc Chau*
11. High-Accessibility Cabinet Insert *Matthew Leal*
12. Weather Balloon Payload Box *Shellbie Liberty*
13. Pin Router Duplicator *Daniel Phan*
14. Pin Router Duplicator Base *Matthew Tebo*
15. ASME Design Challenge: Pentathlon Robot by RoxAnn Roque *RoxAnn Roque*
16. A Sustainable Modern Residential Design Collection for the Pacific Northwest *Vic Savino*
17. Hands-Free Bicycle Stand *Stefan Schacht*
18. Built-in Bicycle Rack for Cars *Scott Hansberry*
19. Adjustable Height Dining Table Chassis *Trevor Watkins*
20. '94 F-150 Running Boards *Justin Wies*
21. Solar Tracker *Carson Man*
22. Heat Transfer Vest *Nicholas Forsgaard*
23. On Demand Water Heater (for homebrewing system) *Jason Warenski*
24. Portable Beer Brewing System *Andrew Kastning*
25. Select Adjustable Trigger System *Seth Rich*
26. Design and Instrumentation of a Continuous Flow Control System *Jared Cail*
27. Control and Analysis of a Closed-Loop Water Control System *Sultan Hamed*
28. Analysis of Torque on a Gear Train Demonstrator *Chad Lehman*
29. Design and Implementation of Updated Instrumentation for the Instron Tensile Tester *Merrick Pickett*
30. Utilizing Ultra-Sonic Sensors in Automated Vehicles *Zachary Switzer*
31. Monitoring battery drain and parasitic loads on Kenworth trucks *Geena Wilkerson, Mohammed Alabdulmuhsin*
32. Electric Motor Dynamometer Project *Ryan Berghoff*
33. Central Washington University C-Clamp Matchplate *Ryan Berghoff*
34. Abstract *Jason Katrina*
35. ASME Baja car drivetrain *Walter Lackey*
36. ASME RC Baja Car: Suspension and Chassis *Charles Aidan Pringle*
37. Directional Rope Capture Device *Seaver Philipp*
38. H.F. Hauff Outrigger Project: Vertical Arm *Juan Tovar*
39. HF HAUFF Outrigger: Lateral Articulating Arm *Brett Ulrich*
Portable Snow-Scooter *Tiago Sousa*

Giving Shape to Asteroid 471 Papagena *Jeff Carter, Michael Brice*

Measuring the Muon Decay Rate Using Scintillation Detection Methods *Bryan Dahlgren, Julia Raible*

Differential Back-Scattering using Collimated Light *Isaac Dietz*

Investigating the Properties of a Laser using a Michelson-Interferometer *Tyler Dunbar*

Young’s double slit Experiment using Heralded Single Photons *Trent English*

Commissioning the New Research Telescope and Proline 4240 CCD Camera *Corey Patrick, Howard Yeung, Derek Ricketson*

In vitro modeling of microtubule movement *Jessica Carder, Brianna Owen, Eric Foss, Nick Collins*

Examination of Sound Transmission Loss Between Adjacent Offices *Nick Collins*

Late-Time Phase Transitions and Scalar Field Interactions with the Cosmic Neutrino Background *Jason Arakawa*

Parallel Processing Model of Interaction Between Thermal Oxygen Ions and Titan’s Atmosphere *Alex Higgins*

A Fluid Dynamics and Numerical Analysis Approach on Cosmic Dust Particles *Kassandra Garcia*

Cultural Modification of Faunal Remains at the French Rapids Archaeological House Feature Site (45KT13) *Matt Johnson*

SQUIRREL! An Experiment on Mammal Bone Decay in Acidic, Alkaline, and Neutral Solutions *Rachael Martin*

Rendering and Comparative Osteometrics of a Bobcat *LeAnna Chard, Elizabeth Shenyer*

Logging in the Pacific Northwest *Madison Smith*

Reconstructing Wildfire History at Twin Lake, Oregon, Using Macroscopic Charcoal Analysis *Nicholas Poprawski*

Variability of Sign Use in Chimpanzees Before and After Relocation *Kailie Dombrasusky, Charlotte Hings*

Mother-Immature Relationships in Tibetan Macaques (*Macaca thibetana*) at Mt. Huangshan, China *Courtney Martinez*

## Keynote Speaker

4:00–5:00 PM

**Anthony Washines: Relationship of Emotional Health to Positive Learning Outcomes**

SURC Theater

Kwyamat, also known as Anthony Washines, born on the Yakama Reservation at home in 1945. A lifelong fisherman on his ancestral and native Columbia River areas. Served in Vietnam in the United States Marine Corps (1966-68). Worked as an Economic Development Specialist and consultant before joining the Tribal Council in 1978. He retired from Tribal Government in 2003 as the General Council Chairman. Mr. Washines has served on many boards and commissions locally and nationally including thirteen (13) years on the Board of Trustees of Yakima Community College. Today he resides in Toppenish, WA with his wife Myrna and surrounded by numerous grandchildren and family. He is a tribal elder that conducts various ceremonial activities through the North West, besides being a consultant and marketing businessman. In his spare time, he golfs to a 5 handicap as well as being a fly fisherman and fly tier for over 60 years.
Acknowledgments

SOURCE COMMITTEE
Anne Egger, Jamie Gilbert, Volha Isakava, Allyson Rogan-Klyve, Glen Bach, Christina Barrigan, Michael Braunstein, Carla Jellum, Sarah Samblanet, Jaclyn Krause, Lucas Rucks, Laura Sanchez, Gabrielle McNeillie, Maureen Rust, John Neurohr, Steve Wenger, Julie Carmen, Leslie Lotspeich, Maria Watters, Christopher Mendez, Meghan Gilbert

K-12 COORDINATORS
Jamie Gilbert, Meghan Gilbert, Christina White, Allyson Rogan-Klyve

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Jamie Gilbert and Diane Houser

PROGRAM AND PROCEEDINGS COPY AND SCHEDULE EDITOR
Jamie Gilbert, Meghan Gilbert, Madelynn Hill, and Michael Braunstein

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Jessica Murillo-Rosales, Davis Kimball, Quinten Curry, Kristen Moerdyk

ONLINE STREAMING ACCESS AND RECORDINGS
Chad Schone and Forrest Hollingsworth (Multimodal Education Center), Jamie Gilbert, Meghan Gilbert

SOURCE POSTER AND PRINTING LIASIONS
Kirsten Garland (Wildcat Printing) and Chad Schone (Multimodal Education Center)

DIGITAL ARCHIVING OF SOURCE PRESENTATIONS ON SCHOLARWORKS
Mattias Olshausen (Library), Jamie Gilbert

JUDGING LIASON AND COORDINATOR
Anne Egger

DES MOINES CAMPUS COORDINATORS
Jamie Gilbert, Lucas Rucks, Madelynn Hill, and Jara Bosmans

WILDCAT ACCESS TV
Ricki Towner and Allie Quay (Publicity Center), Meghan Gilbert

SOURCE WEBSITE/APP
Ryan Brickey, Cecilio Valley, Sadia Afroze, Benjamin Lanza, and Shane Swezey

SOURCE22 CELEBRATION
Jamie Gilbert, Laura Sanchez, Christina Barrigan, Christopher Mendez, Kacie Little, and Meghan Gilbert, Graduate Student Dinner Chair

HUMAN SUBJECTS REVIEW COMMITTEE (HSRC) AND INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE (IACUC)
Sandy Martinez, Jason Irwin, Leslie Lotspeich, Jamie Gilbert, Meghan Gilbert

CWU DISABILITY SERVICES AND WASHINGTON SENSORY DISABILITIES SERVICES
Maria Waters, Alice Bowman, Carol Carrothers, Christy Camarata, Jamie Gilbert, Meghan Gilbert

KEYNOTE SUPPORT
Jamie Gilbert, Christina White, Meghan Gilbert, Jara Bosmans, and Madelynn Hill

SURC SCHEDULING AND COORDINATION/MUSIC BUILDING
Brian “BK” Koehler, Drew Carter, Bonnie Hendrickson, Stacey Ferris, Jamie Gilbert, Meghan Gilbert, Marcie Brown, Harry Whitaker

VOLUNTEER COORDINATION AND TRAINING
Madelynn Hill, Jara Bosmans, Meghan Gilbert, Jamie Gilbert
Special Thanks to Our Student Staff and Interns

SOURCE is grateful to all the students from multiple disciplines who came together and volunteered to make SOURCE the student-driven event it is.

We are grateful for the work of our graduate assistant, Meghan Gilbert, and our five dedicated, hard-working interns, including two who are center students and who dedicated time to both the Ellensburg and Des Moines campuses: Jacob Brown, Jara Bosmans, Madelynn Hill, Jacob Hollingsworth, and Jessica Murillo-Rosales.

Our SOURCE 2017 website were due to the dedication and determination of five senior Computer Science students: Ryan Brickey, Benjamin Lanza, Cecilio Valley, Sadia Afroze, and Shane Swezey.

The SOURCE 2017 Official Website has the complete online program with abstracts at: http://www.cwu.edu/~source2017/
Scholar and Mentor of the Year Nominees

SCHOLAR OF THE YEAR NOMINEES

Lori Molzan  
Jake Funkhouser  
Juan Flores  
Amairani Martinez  
Dmytro Dovhalets  
Jason Galletly  
Victoria Zencak  
Raegan Nelson  
Amanda Rowe  
Lara Gil  
Patrick Carpenter  
Holly Chapman  
Bridget Bartlett  
Gavin Schag  
Kristin Ashley  
Christina White  
Sophia Andarovna  
Madeline Lootens

MENTOR OF THE YEAR NOMINEES

Robert Hickey  
Thomas Tenerelli  
April Binder  
Carla Jellum  
Teresa Divine  
Kristina Ernest  
Lisa Ely  
Vanessa Hunt  
Liane Pereira  
Jer Loudenback  
Nathan Kuwada  
Kathryn Temple  
Jamie Gilbert  
Breany MacInnes  
Mathew Burvee  
Gabrielle Stryker  
Maya Zeller  
Roxanne Easley  
Greg Lyman  
Todd Kroll  
Jeffrey Snedeker  
Tonya Buchanan  
Marte Fallshore  
Xavier Cavazos  
Yukari Amos  
Loretta Gray  
Liahna Armstrong  
Tishra Beeson  
William Phipps

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 2017 AWARDS

WEDNESDAY, MAY 24  
IN THE SURC PIT FROM NOON – 1 PM  
EMCEEED BY KRISTIN TALBOTT  
PRESIDENT OF THE CWU RESEARCH & PROFESSIONAL DEVELOPMENT CLUB

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.
Kwyamat, also known as Anthony Washines, was born on the Yakama Reservation in 1945. After serving in the US Marine Corps (Vietnam) and attending Washington State University, Anthony returned to his homeland and dedicated his life to helping the Yakama Nation and its people prosper. Using his business savvy, he assisted in the development of many Yakama enterprises and programs that created more jobs, better access to housing, and increased financial stability for the tribe. Today he resides in Toppenish, WA and is a tribal elder that conducts various ceremonial activities through the northwest.
PROGRAM COVER DESIGN

Senior graphic design student, Jeremy Allegre, is this year's SOURCE poster designer under the direction of Professor Glen L. Bach in the Department of Art. Jeremy's main interest of design is in packaging, print design, and branding. To preview more of his work, you can visit www.behance.net/Jeremyallegre.

The SOURCE poster and program cover is one of the many academic service learning projects that students undertake in Professor Bach's curriculum, and Jeremy spoke to the impact that this assignment has on the students. He said having the experience of working with a client in a classroom setting before heading out into the career field was very helpful. Alongside that, having the opportunity to design a poster from conception to finish, which further went into production and have it match the design he originally intended was a great experience to have while still in college.

SPECIAL THANK YOU

Professor Glen L. Bach is the recipient of the 2016-2017 Academic Service-Learning Faculty Fellow Service Award. We do not know anyone more deserving and would like to acknowledge Glen for his years of service to AS-L, SOURCE, and the Children of Chernobyl Project.

SEE YOU NEXT YEAR AT SOURCE 2018
MAY 16th & MAY 17th