### 2023 Cascades Research and Scholarship Symposium Posters by student major

<table>
<thead>
<tr>
<th>Student Major</th>
<th>Count</th>
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<tbody>
<tr>
<td>Biology</td>
<td>6</td>
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<tr>
<td>Computer Science</td>
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<tr>
<td>Energy Systems Engineering</td>
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<td>Engineering</td>
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<tr>
<td>Human Development &amp; Family Sciences</td>
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<tr>
<td>Kinesiology</td>
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<tr>
<td>Natural Resources/Environmental Science</td>
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<td>Outdoor Products</td>
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<td>Physical Therapy</td>
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<td>Psychology</td>
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<td>Social Science</td>
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<td><strong>Total</strong></td>
<td><strong>41</strong></td>
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Students receiving fellowship support are indicated by the following:

- Layman Fellow
- URSA Engage Fellow

### Biology

1. Kalli Verzera  
   Atomic Absorbance Quantification of Lithium Solutions  
   Mentor: Scott Geddes

2. Jessica Sanderson  
   HPLC Analysis of Oxybenzone Contamination in the Deschutes River  
   Mentor: Scott Geddes

3. Cristoph Klews\(^1\), Jennifer McCabe\(^1\), MiCayla Johnson, Marie Gabriel\(^1\), and Analiska Dominguez  
   Gastrointestinal Tract Microbiome Analyses from a Gray Wolf (Canis lupus) Ileum  
   Mentors: Bruce Seal and Pat Ball

4. Jennifer McCabe\(^1\), MiCayla Johnson, Cristoph Klews\(^1\), Jessika Bryant, Analiska Dominguez, and Marie Gabriel\(^1\)  
   Phenotypic and Whole Genome Sequence Analyses of a Putative Paenibacillus spp. from a Gray Wolf (Canis lupus) Gastrointestinal Tract  
   Mentors: Bruce Seal, Pat Ball, and Evan Forsythe

5. Jessika Bryant, Jennifer McCabe\(^1\), MiCayla Johnson, Analiska Dominguez\(^1\), Cristoph Klews\(^1\), and Marie Gabriel\(^1\)  
   Phenotypic and Whole Genome Sequence Analyses of a Putative Enterococcus spp. from a Gray Wolf (Canis lupus) Gastrointestinal Tract  
   Mentors: Bruce Seal, Pat Ball, and Evan Forsythe

6. Trinity Bartel and Luna A. L'Argent\(^1\)  
   Genomic analysis of protein-protein interactions involved in oxygen sensing in Crustaceans  
   Mentor: Evan Forsythe
Computer Science
7. Samson DeVol
Hearing Simulator Web Application
Mentor: Patrick Donnelly

8. Jonah Broyer and Samson DeVol
Music Concert Program Optical Character Recognition
Mentor: Patrick Donnelly

9. Doug Dennis
Deep Audio Dataset
Mentor: Patrick Donnelly

10. Orion Junkins, Melissa Swearingen, Zachary Bochanski, and Douglas Dennis
Hydrological Forecasting Using Spatially and Temporally Aware Neural Network Ensembles
Mentor: Patrick Donnelly

11. Kevin Tran, Griffin Riley, Avery Mao, Nick Burrell, Gavin Lesher, Jungmin Lee, and Zachary Chand
Conlang Speech Synthesizer
Mentor: Patrick Donnelly

12. Caleb Knight, Mason Mann, and Scot Rein
MIDI Performance Data
Mentor: Patrick Donnelly

13. Kimberly Markley
Made With Love in Bend
Mentor: Patrick Donnelly

14. Kobe Chenea, Paul Koos, Victor Marquez, and Alexander Prestwich
Music Score Visualization
Mentor: Patrick Donnelly

15. Kameron Keller and Dalton Shults
AlgoRhythms: Exercise to Your Favorite Music (poster with live demonstration)
Mentor: Patrick Donnelly

16. Allison Schultz, Danielle Puga, Matthew Walker, and Andrew Young
Music Affect App
Mentor: Patrick Donnelly

17. Ryan Earl
Smart Dog Collar
Mentor: Patrick Donnelly

18. Luke Reynolds and Himanshu Dhir
Food Detector AI Website
Mentor: Patrick Donnelly
**Energy Systems Engineering**

19. Brayden MorseL  
Validation of porous geometry as replacement for manifold-microchannel heat exchanger’s manifold  
Mentor: Xiang Zhang

20. Tim MurphyL  
Self-Cleaning Turbine-Driven Rotating Heat Exchanger  
Mentor: Xiang Zhang

21. Casey HeiskellL and Kaitlin BrunikL  
Machine Learning for Wind Turbine Controls  
Mentors: Rebecca Webb and Kyle Webb

22. David LowrimoreL  
Felid caching affects interspecific discovery dynamics and has implications for raptor conservation  
Mentor: Matthew Orr (Biology)

**Engineering**

23. Rebekah O’NeillL  
Mechanical System for Hypersaline Water Treatment from Desalination Waste  
Mentor: Xiang Zhang

**Human Development & Family Sciences**

24. Maria PerazaL and Cecilia Murguia-Lomeli  
Latina mothers’ perceptions on maternal well-being  
Mentor: Brianne Kothari

25. Allison BarrU and Kaitlin Greene  
How Researchers Can Increase Engagement With Young Adults  
Mentor: Brianne Kothari

26. MaryJane WestoverU and Dorlma Wang  
Student Wellness at OSU-Cascades: Resource and Programming Needs and Desires  
Mentor: Brianne Kothari

**Physical Therapy**

27. Brett Traeger, Victoria Boechler, Kieran Giammichele, Natasha Giulietti, Drew Moore, Lily BartelU, Bethany BurrL, and Sherri Dean  
The Influence of Maximal Shoes on Running Biomechanics and Plantar Pressure in Recreationally Active Adults  
Mentor: Christine Pollard

**Kinesiology**

28. Bethany BurrL  
Peak Torque Limb Comparison and Kinesiophobia Correlation Post-ACL Surgery  
Mentors: JJ Hannigan, Christine Pollard, and David Phillips
29. Lily Bartel\textsuperscript{L}, Andrew Traut, and Bethany Burn\textsuperscript{L}
Comparing Peak Posterior Ground Reaction Forces in Recreational Runners in Maximal and Traditional Shoes
Mentors: Christine Pollard and JJ Hannigan

30. Jordan Ory\textsuperscript{L}, Andrew Traut, and Lily Bartel\textsuperscript{L}
Comparing Peak Tibial Internal Rotational Velocity in Recreational Runners in Maximal and Traditional Shoes
Mentors: JJ Hannigan and David Phillips

31. Hannah Dozhier
Evaluating Between-Limb Differences in Cutting, Drop Vertical Jumping, and Running Biomechanics Post ACL-Reconstruction
Mentors: JJ Hannigan and Christine Pollard

32. Lauren Vennes, Sydney Snapp, Barbara Sutton, Kaleb Sperry, Brad Alexander, and Dr. Gregory Grosicki
Considerations of the Gut Biome in Ultra Running
Mentor: Timothy Burnett

**Natural Resources/Environmental Science**

33. Josiah Chan\textsuperscript{L}
Is Floodplain Restoration a Viable Option to Increase Perennial Flows in the Upper Crooked River?
Mentors: Skuyler Herzog, Matt Orr (Biology), and Ron Reuter

34. Vernon Jackson Smith\textsuperscript{L}
Whychus Creek Restoration Monitoring
Mentor: Skuyler Herzog

**Outdoor Products**

35. Raine Kosek\textsuperscript{L}
Streamlining Support Structure Creation for Additive Manufacturing
Mentor: Xiang Zhang

**Psychology**

36. Shane Kelly
Introversion and Psychological Well-Being: A Correlational Study
Mentor: Christopher Wolsko

37. Duyan D. Ngo, Sean Bullock, Camilla Dohlman, and Beth Phelps
Mentor: Brianne Kothari (Human Development and Family Science)

38. Ashlynn Barwig\textsuperscript{L}
Warm and Supportive Parenting and the Effects on Preschool Child Empathy
Mentor: Shannon Lipscomb (Human Development and Family Science)

39. Kira Biboux, Ashlynn Barwig\textsuperscript{L}, Krystin Williams, Gustav Bock
Undergraduate Research Experience on the Flame Retardant and Home Environment on Children's School Readiness Study
Mentor: Shannon Lipscomb (Human Development and Family Science)
40. Nicholas Nasca
Operationalizing Youth Engagement in Digitally Delivered Learning and Behavior Change Interventions
Mentor: Brianne Kothari (Human Development and Family Science)

Social Science
41. Taha Abd Al-Rahman Mohamed Elwefati and Myra Flores
Layman Fellowship project on perceptions of feelings and experiences of safety and inclusion among people of color in Bend, Oregon
Mentor: Elizabeth Marino