



#	Name (<i>Home Institution</i>)	Project Title	Program (PI)	Coauthors
1	Dakota Donaldson (<i>Frostburg State University</i>)	Transport Mechanics of Microplastic Fibers in a Porous Media Model	Atmospheric Chemistry and Climate Change: Measurements and Modeling in the Pacific Northwest (Shelley Pressley)	Tyler Fouty, Nick Engdahl
2	Jared Kelnhofer (<i>Washington State University</i>)	Self-supervised Vs LSTM Approach to EEG Emotion Detection Tasks	Wearable Computing (Hassan Ghasemzadeh)	Mona Ghandi, Marcus Blaisdell
3	Nhu-Y Do (<i>Bellevue College</i>)	Enumeration and Confirmation of Bacillus cereus in Cooked Rice Noodles Stored at Different Temperatures	Sustainable High-value Horticulture and Processing (Doug Collins)	Barakatullah Mohammadi, Stephanie Smith
4	Nhan H. Nguyen (<i>Washington State University</i>)	Quantifying Superficial Scald in Granny Smith Apple Using Image Segmentation Techniques and a Convolutional Neural Network	Phenomics Big Data Management (Sindhuja Sankaran)	Heidi Hargarten, Loren Honaas, Stephen Ficklin
5	Sandra Illescas (<i>California State University Northridge</i>)	Examining the Impacts of a CURE in an Undergraduate Introductory Biology Course for Minoritized Groups	Research in Interdisciplinary STEM Education (RISE) (Erika Offerdahl)	Gretchen Rollwagen-Bollens
6	Duncan Jurayj (<i>Brown University</i>)	Modeling the Impact of Cropping Systems on Irrigation Reliability	Stakeholder Informed Modeling of Innovations in the FEW (Julie Padowski)	Jan Boll
7	Sasha Campana (<i>Randolph-Macon College</i>)	A Comparison of Variable and Spectroscopically Selected Active Galactic Nuclei in Dwarf Galaxies	Waves in the Universe and Technology (Brian Collins)	Vivienne Baldassare, Erik Wasleske, Christopher Carroll
8	Sienna Alicea (<i>North Central College</i>)	Improving Satellite Imagery-based Estimates of Crop Residue Cover in the Pacific Northwest by Integrating Moisture Dependency Effects	Atmospheric Chemistry and Climate Change: Measurements and Modeling in the Pacific Northwest (Shelley Pressley)	Kirti Rajagopalan, Siddharth Chaudhary, Haly Lury Neely



Summer Undergraduate Research Symposium 2022

9	Steven Binder (<i>The University of Georgia</i>)	XLINX Satellite Communication System	Phenomics Big Data Management (Sindhuja Sankaran)	Adam Slater, Anika Raisa Khan, Christian Nicoll, Subhanshu Gupta
10	Kayden Cantrell (<i>Willamette University</i>)	COVID-era Teaching Tools: An Assessment of Learning Gains Across In-person, Online, and Hybrid Formats of a Developmental Biology CURE	Research in Interdisciplinary STEM Education (RISE) (Erika Offerdahl)	Erica Crespi, Cleve Young
11	Sara Murillo (<i>The University of Texas at Austin</i>)	Integrating Pumped Storage Hydropower with Renewable Energy Sources to Improve Electric Grid Reliability and Financial Stability	Stakeholder Informed Modeling of Innovations in the FEW (Julie Padowski)	Jennifer Adam, Matthew Yourek
12	Andrew Liu (<i>University of Pittsburgh</i>)	Validation of <i>Enterococcus Faecium</i> NRRL B-2354 as a Surrogate of <i>Listeria Monocytogenes</i> During Sanitizer Intervention in Simulated Water	Sustainable High-value Horticulture and Processing (Doug Collins)	Yuan Su, Meijun Zhu
13	Alex Heinrich (<i>Washington State University</i>)	Rubidium Repolarization by Hyperpolarized Xenon	Waves in the Universe and Technology (Brian Collins)	Adnan Nahlawi, Zahra Armanfard, Brian Saam
14	Rowan Orlijan-Rhyne (<i>Swarthmore College</i>)	Modeling Crop Residue's Effect on Sugarcane Soil Moisture	Atmospheric Chemistry and Climate Change: Measurements and Modeling in the Pacific Northwest (Shelley Pressley)	Fabio Scarpore
15	Aengus Kennedy (<i>Tufts University</i>)	Developing Phenomics Tools for Pea Breeding	Phenomics Big Data Management (Sindhuja Sankaran)	Sintayehu Daba, Puneet Mangat, Milton Valencia Ortiz, Rebecca McGee
16	Cleve Young (<i>University of Nebraska-Lincoln</i>)	A Development CURE for Vision and Change: Do Cures Advance Learning of Key Competencies and Extend Scientific Thinking From the Classroom Into Their Lives?	Research in Interdisciplinary STEM Education (RISE) (Erika Offerdahl)	Kayden Cantrell, Erica Crespi



Summer Undergraduate Research Symposium 2022

17	Brandt Geist (<i>Cornell University</i>)	Evaluating the Streamflow Augmentation Potential of Partially Leasing Agricultural Water Rights via Deficit Irrigation under Future Climate Change Scenarios	Stakeholder Informed Modeling of Innovations in the FEW (Julie Padowski)	Kirti Rajagopalan, Siddharth Chaudhary, Bhupinderjeet Singh, Roger Nelson
18	Daviti Vardishvili (<i>Washington State University</i>)	Supporting ornamental, flower, and bulb crop productions in the Pacific Northwest through applied research	Sustainable High-value Horticulture and Processing (Doug Collins)	Joseph Michael Hulbert, Gary A. Chastagner
19	Alexander Lewis (<i>Loyola University Chicago</i>)	Off-Resonant Optical Pumping in Rb-Xe Mixtures	Waves in the Universe and Technology (Brian Collins)	Adnan Nahlawi, Brian Saam
20	Lourdes Loera (<i>Arizona State University</i>)	Evaluating the Transport of the Antibiotic Resistance Gene NPTII in Saturated Soil	Atmospheric Chemistry and Climate Change: Measurements and Modeling in the Pacific Northwest (Shelley Pressley)	Courtney M. Gardner, Sandra Un Jan Contreras
21	Scottie Teichmer (<i>Lewis-Clark State College</i>)	Testing for a New Immunity Trigger in Rice: Luminol Hrp Assay to Test for Ros Response to Elicitor Hydroxycinnamates Ferulic Acid and P-coumaric Acid in Rice Leaf	Plant Biofuels and Functional Genomics REU (Laura Bartley)	Leilani Concepcion, Niharika Nonavinakere Chandrakanth, Laura Bartley
22	Leilani Concepcion (<i>Washington State University</i>)	Testing the Effect of Hydroxycinnamates on the Immune Response of Rice Plants	Plant Biofuels and Functional Genomics REU (Laura Bartley)	Alissa Carreno, Scottie Teichmer, Niharika Nonavinakere Chandrakanth, Laura Bartley
23	Carissa Morrison (<i>Eastern Washington University</i>)	Examining the Regulation of Alpha-amylase During Grain Germination, a First Step Towards Controlling Preharvest Sprouting in Wheat.	Plant Cell Biology and Biochemistry (Andrei Smertenko)	Steber Camille, Yakobchuk Nicholas



Summer Undergraduate Research Symposium 2022

24	Zachary Cunningham (<i>Lewis-Clark State College</i>)	Sustaining Oil Production in Response to Climate Change	Plant Cell Biology and Biochemistry (Andrei Smertenko)	Brend'n Blankenship, Matt Garneau, Bhabesh Borphukan, Phil Bates, Karen Sanguinet
25	Dasha Winterer (<i>Washington State University</i>)	Impacts of Nitrogen Fixing Bacteria on Plant Growth and Morphology in Soils of the Palouse	Plant Cell Biology and Biochemistry (Andrei Smertenko)	Grace Cooper, Rahele Panahabadi, Florence Mus, John Peters, Tarah Sullivan, Laura Bartley
26	Grace Cooper (<i>Gonzaga University</i>)	Effectiveness of Azotobacter Mutant AvFM2 at Rhizosphere Colonization and Ammonium Secretion for Plant Growth Optimization	Plant Cell Biology and Biochemistry (Andrei Smertenko)	Florence Mus, Laura Bartley, Rahele Panahabadi, Dasha Winterers, Maddie Sorensen, John Peters, Jeremy Jewell
27	Bethlehem Yohannes (<i>Eastern Washington University</i>), Hunter Whitlock (<i>Innovation High School</i>)	Effects of MACET on Microtubule Dynamics	Plant Cell Biology and Biochemistry (Andrei Smertenko)	Andrei Smetenko, Tetyana Smertenko
28	Tommy Conway (<i>Washington State University</i>)	Using Molecular Techniques to Investigate the "Green Bridge" Effect in a Dryland Wheat System	Improving Crop Resiliency: Agriculture in Changing Climate (Matthew Peck and Andrei Smertenko)	Kimberly Garland-Campbell (USDA-ARS), Nuan Wen (WSU Crop and Soil Sciences), Christina Hagerty (OSU CBARC)
29	Edwin Polanco (<i>University of Massachusetts Boston</i>)	Automated Image Processing of Pear Rootstock Seedling Vigor Using PlantCV	Phenomics Big Data Management (Sindhuja Sankaran)	Kate Evan, Soon Li Teh



Summer Undergraduate Research Symposium 2022

31	Tessa Irvine (<i>Allegheny College</i>)	Responding to Drought Conditions in the Roza Irrigation District	Stakeholder Informed Modeling of Innovations in the FEW (Julie Padowski)	Allyson Beall-King
32	Sofia Franzhuebbers (<i>University of Guelph</i>)	Fruit Firmness Assessment for High Quality Sweet Cherries	Sustainable High-value Horticulture and Processing (Doug Collins)	Bernardita Sallato, Matthew Whiting, Carolina Torres
33	Brian Bauer (<i>Siena College</i>)	Searching for Equilibration of Quantum Turbulence	Waves in the Universe and Technology (Brian Collins)	Michael Forbes, Edward Eskew
34	Rosario Morales (<i>Lewis-Clark State College</i>)	Headspace-Gas Chromatography Analysis of Volatile Organic Compounds from Compost	Atmospheric Chemistry and Climate Change: Measurements and Modeling in the Pacific Northwest (Shelley Pressley)	Shastine Huddleston, Nancy A. C. Johnston
35	William Bieker (<i>Western Washington University</i>)	Raspberry Color Analysis of 10 New Varieties of Berry	Phenomics Big Data Management (Sindhuja Sankaran)	Lisa DeVetter
36	Emma Stacey (<i>Georgia State University</i>), Braelyn Young (<i>West Virginia University</i>)	Health Education through Arts-based Learning (HEAL): Examining Systems Thinking and the Impact of Out of School Contexts Within an Afterschool Science Program	Research in Interdisciplinary STEM Education (RISE) (Erika Offerdahl)	Robert Danielson, David Garcia, Elizabeth Grace, Molly Kelton, Ana Maria Diaz-Martinez, Jeb Owen, Kellen Pautzke, Kristin Saba Fisher, Allison White
37	Daniel Chaidez (<i>Cal Poly Humboldt</i>)	Dynamic Modeling of the Marginal Costs of Sunburn Prevention Methods in Apple Orchards	Stakeholder Informed Modeling of Innovations in the FEW (Julie Padowski)	Michael Brady, Kirti Rajagopalan, Lee Kalcsits
38	Breana Downs (<i>Pacific Lutheran University</i>)	Protein Solubility's Correlation with Direct Expansion During Twin-Screw Extrusion Processing	Sustainable High-value Horticulture and Processing (Doug Collins)	Jana Richter, Marina Ikuse, Joshua Bernin, Angelika Zak, Nan Chalida, Preston Watanabe, Girish Ganjyal



Summer Undergraduate Research Symposium 2022

39	Jennifer Lopez (<i>Grinnell College</i>)	Analysis of Kapitza-Dirac Scattering of a Rb-87 Bose-Einstein Condensate	Waves in the Universe and Technology (Brian Collins)	Annesh Mukhopadhyay, Kamrul Ome, Peter Engels
40	Matthew Zaragoza (<i>University of Virginia</i>)	A Climate Change Impact Projection for Heat Damage of Blueberries	Atmospheric Chemistry and Climate Change: Measurements and Modeling in the Pacific Northwest (Shelley Pressley)	Fabio Scarpore, Kirti Rajagopalan
41	Kevin Hernandez-Ramos (<i>Wenatchee Valley College</i>)	Role of Image Ortho-rectification on Crop Vegetative Indices	Phenomics Big Data Management (Sindhuja Sankaran)	Kesevan Veloo, Sindhuja Sankaran
42	Madeline Lorquet (<i>Rockland Community College</i>)	Bridging Equity Gaps in General Chemistry with a Novel Prep Chem Class	Research in Interdisciplinary STEM Education (RISE) (Erika Offerdahl)	Paul Buckley, Angela Hong, Jazmyn Juarez
43	Giselle Malloy (<i>University of Connecticut</i>)	The Role of Floodplain Restoration in Ellensburg, Washington Managed Aquifer Recharge from Overbank Floods.	Stakeholder Informed Modeling of Innovations in the FEW (Julie Padowski)	Julie Padowski
44	Malachi Ledbetter (<i>Washington State University</i>)	Soil and Water Quality for Root Health and Management Verticillium Wilt of Potato	Sustainable High-value Horticulture and Processing (Doug Collins)	Hatem Younes
45	Olivia Laske (<i>Macalester College</i>)	Aperture-matched Spectroscopy and Photometry of 132 Early-type Galaxies	Waves in the Universe and Technology (Brian Collins)	Guy Worthey, Xiang Shi, James Schombert
46	Joshua Pridemore (<i>St. Mary's University</i>)	Experimentation and Numerical Simulation of Microplastic Fiber Transport Behaviors in Porous Media	Atmospheric Chemistry and Climate Change: Measurements and Modeling in the Pacific Northwest (Shelley Pressley)	Nicholas Engdahl, Tyler Fouty, Dakota Donaldson
47	Guadalupe Iniguez (<i>Heritage University</i>)	Genome-wide Association Studies Used to Find Correlations Between Phenotypic Traits of Wheat Plants	Phenomics Big Data Management (Sindhuja Sankaran)	Michael Pumphrey, Peter Schmuker



Summer Undergraduate Research Symposium 2022

48	Arelis Baez Rosario (<i>University of Massachusetts, Boston</i>), Vince Ferrizzi (<i>Lebanon Valley College</i>), Kelsey Heard (<i>Morehead State University</i>)	Measuring the Effect of Professional Development for Best Practices in Crafting Exam Questions	Research in Interdisciplinary STEM Education (RISE) (Erika Offerdahl)	Erika Offerdahl
49	Arelis Baez Rosario (<i>University of Massachusetts, Boston</i>), Vince Ferrizzi (<i>Lebanon Valley College</i>), Kelsey Heard (<i>Morehead State University</i>)	Exploring the Effects of Task Framing on Student Learning Following the Integration of the Argumentation For Learning Framework	Research in Interdisciplinary STEM Education (RISE) (Erika Offerdahl)	Jessie Arneson, Erika Offerdahl
50	Maahi Jaiswal (<i>Mount Holyoke College</i>)	Antimicrobial Resistance in Foodborne Pathogens	Sustainable High-value Horticulture and Processing (Doug Collins)	Stephanie Smith, Marco Perez Reyes
51	Carson Beyers (<i>Illinois College</i>)	Domain Hypothesis of Self-healing in Disperse Orange 11 Dye-doped PMMA	Waves in the Universe and Technology (Brian Collins)	Acacia Patterson, Elliot Steissberg, Mark Kuzyk, Brian Collins
52	Li Wright (<i>Washington State University</i>)	Evaluating Microbial Sources of Greenhouse Gas Emissions in Compost	Atmospheric Chemistry and Climate Change: Measurements and Modeling in the Pacific Northwest (Shelley Pressley)	Courtney Gardner, Sandra Un Jan Contreras



Summer Undergraduate Research Symposium 2022

53	Elijah Persson-Gordon (<i>Michigan State University</i>)	Using Images to Detect Herbicide Injury	Phenomics Big Data Management (Sindhuja Sankaran)	Andrew Herr, Arron Carter
54	Ashly Bailey (<i>University of Louisville</i>)	Sea-level Rise Forces Adaptation Measures on King County and Quileute Reservation: Federal Funding for Climate Change May Be an Environmental Justice Issue	Stakeholder Informed Modeling of Innovations in the FEW (Julie Padowski)	Michael Goldsby
55	Olivia Hunt (<i>Skidmore College</i>)	Utilization of the Modified Gompertz Equation to Model Rate of Anaerobic Digestion	Stakeholder Informed Modeling of Innovations in the FEW (Julie Padowski)	Liang Yu
56	Alexandra Hurd (<i>Macalester College</i>)	Enhancing Charge Lifetimes in Organic Solar Cells Through Less Toxic Processing	Waves in the Universe and Technology (Brian Collins)	Awwad Alotaibi, Brian Collins
57	Shastine Huddleston (<i>Lewis-Clark State College</i>)	Thermal Desorption-Gas Chromatography-Mass Spectrometry Analysis of Volatile Organic Compounds Emitted from Compost	Atmospheric Chemistry and Climate Change: Measurements and Modeling in the Pacific Northwest (Shelley Pressley)	Rosario Morales, Nancy A. C. Johnston
58	Alexis Pleskovitch (<i>Allegheny College</i>)	Student Responses and Learning Gains in Physics and Your World	Research in Interdisciplinary STEM Education (RISE) (Erika Offerdahl)	Anya Guy
59	Landon Chase (<i>Ohio State University</i>)	Systems Dynamic Modeling to Evaluate the Feasibility of Biochar Production in Washington State	Stakeholder Informed Modeling of Innovations in the FEW (Julie Padowski)	Manuel Garcia-Pérez, Lina Martínez Valencia, Valentina Sierra Jimenez
60	Steven Hernandez (<i>California State University San Marcos</i>)	Tilt and Bowing of High Velocity Projectiles	Waves in the Universe and Technology (Brian Collins)	James Hawreliak, Nate Arganbright, Kurt Zimmerman
61	Richard Castro (<i>Washington State University</i>)	Wearable Computing	Wearable Computing (Hassan Ghasemzadeh)	Ramesh Sah, Hassan Ghasemzadeh