

2018 Intel NWSE High School Awards

April 13, 2018

The Intel Northwest Science Expo, held Friday, April 13, 2018 at Portland State University, announces top winners in Oregon's state-level science research competition affiliated with the Intel International Science and Engineering Fair.

Intel NWSE includes both a middle school and high school division. The two divisions included 513 projects from 80 schools and organizations across the state. This is the first time since 2006 that both middle and high school students competed under the same roof in the new Viking Pavilion. Two best of fair winners were chosen from each division.

- Audrey Johnson, 14, in grade 8 from Summa Whitford won Best of Fair in the middle school division with a project titled, "The Effect of Urban Development on Turbidity In Fanno Creek".
- Rubaba Amyeen, 12, in grade 6 from Summa Stoller won Best of Fair in the middle school division with a project titled, "Patterns for Protection".
- Nathan Tidball, 16, in grade 11 from Wilsonville High School won Best of Fair in Physical Science in the high school division with a project titled, "Single Chamber MFC: Role of Extracellular Phosphate on Heavy Metal Precipitation". Nathan qualified for Intel ISEF at the CREST-Jane Goodall Science Symposium.
- Adit Gupta, 16, in grade 11 from Westview High School was selected as Best of Fair in Life Science in the high school division and an Intel ISEF finalist with a project titled, "A Therapeutic Approach to Cytomegalovirus: Novel Method of Constructing Short Synthetic Promoters Using Randomized TFBS Combinations".

In the high school division, five additional projects were chosen as Intel ISEF finalists. These finalists win an expenses-paid trip to Pittsburgh, Pennsylvania, in May 2018, to compete at the international level, during the Society for Science and the Public organized event, the Intel International Science and Engineering Fair.

- Arnob Das, 18, in grade 12 from Jesuit High School was selected as an Intel ISEF finalist with a project titled, "A New Route to Practical Room Temperature Spin Gain Transistors: Organic Ferromagnetic Semiconductors".
- Divya Amirtharaj, 16, in grade 11 from Westview High School was selected as an Intel ISEF finalist with a project titled, "Utilizing Blockchain to Revolutionize Privacy and Security of Medical Records".
- Musa Tahir, 16, in grade 11 from Oregon Episcopal School was selected as an Intel ISEF finalist with a project titled, "Copper Nanowire Networks for Next-Generation Flexible Touch Sensor Displays and Transparent Heaters".
- Himani Sood, 17, in grade 11 from Westview High School was selected as an Intel ISEF finalist with a project titled, "Drug Testing Chemotherapies to Identify Kinase Pathways Affected by Hypertrophic Cardiomyopathy".
- Nandini Naidu, 17, in grade 12 from Valley Catholic High School was selected as an Intel ISEF finalist with a project titled, "Allosteric Inhibition of the Carbonic Anhydrase IX for Anticancer Applications".

Joining the finalists from Intel NWSE will be the best projects from each of the seven regional fairs in the Northwest Science Expo System. The group of 32 students, collectively referred to as Team OR, will represent the entire state at Intel ISEF against international competition in science, engineering and mathematics.

- Anwesha Mukherjee, 14, in grade 10 from Westview High School qualified for Intel ISEF at Beaverton-Hillsboro Science Expo with a project titled, "A Novel Approach Machine Learning Algorithms to Recognize Emotion From Speech to Aid Social Interaction".
- Ryker Bullis, Nathan Fritsch, and Nicholas Ogden, all 17, in grade 12 from Glencoe High School qualified for Intel ISEF at Beaverton-Hillsboro Science Expo with a project titled, "An Amphibious Teleoperated Vehicle Designed to Collect Water Samples in Remote and Hazardous Environments".
- Rohan Ahluwalia, 16, in grade 10 from Westview High School qualified for Intel ISEF at Beaverton-Hillsboro Science Expo with a project titled, "Automatic Detection of Lipohypertrophy in Insulin Dependent Diabetics".
- Lauren Li, 17, in grade 11 from Westview High School qualified for Intel ISEF at Beaverton-Hillsboro Science Expo with a project titled, "Characterization of AAP Dependency in AAV Capsid Assembly".
- Nastassia Goodson, and Bryan To, both 17, in grade 12 from Oregon Episcopal School qualified for Intel ISEF at Aardvark Science Exposition with a project titled, "Implementation of *Salvinia* sp. and *Eichhornia* sp. for the Phytoremediation, Rhizofiltration, and Recycling of Heavy Metals from Contaminated Aquatic Environments".
- Ryan Westcott, 16, in grade 10 from Oregon Episcopal School qualified for Intel ISEF at Aardvark Science Exposition with a project titled, "Development of a Multidimensional Atmospheric Sensing Platform".
- David Fang, 17, in grade 11 from Oregon Episcopal School qualified for Intel ISEF at Aardvark Science Exposition with a project titled, "Modeling and Integrating the Orbit of Near-Earth Asteroid 2003 QB90 (242211)".
- Aneesh Gupta, 16, in grade 11 from Oregon Episcopal School qualified for Intel ISEF at Aardvark Science Exposition with a project titled, "Multiple Time-Step Predictive Models for Hurricanes in the North Atlantic Basin Based on Machine Learning Algorithms".
- Alison Thomas, 17, in grade 11 from Oregon Episcopal School qualified for Intel ISEF at Aardvark Science Exposition with a project titled, "The Expression of Genes Correlated with ADHD and Dyslexia on the Vocal and Auditory Pathways of a Zebra Finch Model".
- Anna Mattson, 18, in grade 12 from Tillamook High School qualified for Intel ISEF at Central Western Oregon Science Expo with a project titled, "The Effect of Ocean Acidification on Native Olympic Oyster Reproduction and Larval Development".
- Megha Joshi, 16, in grade 11 from South Salem High School qualified for Intel ISEF at Central Western Oregon Science Expo with a project titled, "Next generation intracellular delivery: Optimization of exosome isolation and novel exosome-mediated packaging for therapeutic targeting of cancer".
- Natalie Wang from Lincoln High School qualified for Intel ISEF at Portland Public Schools Science Expo with a project titled, "Oxidative Damage and Aging: The role of catalases and DNA repair systems in protection against oxidative damage in *Escherichia coli*".
- Aditya Sivakumar, 18, in grade 12 from Franklin High School qualified for Intel ISEF at Portland Public Schools Science Expo with a project titled, "Musical Homotopy: A Topological Study of Voice Leading Groups and its Application to Contrapuntal Music Genres".
- James Verheyden, 17, in grade 12 from Bend Science Station qualified for Intel ISEF at COCC Regional Science Expo with a project titled, "The Peru-Ready Method for Optimizing Bioavailable Iron in Water".
- Isaac Klementis, 18, in grade 12 from Gresham High School qualified for Intel ISEF at Gresham-Barlow Science Expo with a project titled, "Lichen as Bioindicators: a study into the relationship between lichen thallus structures and their sensitivity to NO_x and SO_x".
- Gopal Goel, 14, in grade 9 from Krishna Homeschool qualified for Intel ISEF at Gresham-Barlow Science Expo with a project titled, "Discrete Derivatives of Random Matrix Models and the Gaussian Free Field".
- Anushka Nair, 17, in grade 11 from Lake Oswego High School qualified for Intel ISEF at Gresham-Barlow Science Expo with a project titled, "Radiochemistry and AI: Development of

Targeted Emergency Response and Recovery System using ML Algorithms for use after a Nuclear Event".

- Pooja Jain, 17, in grade 11 from West Linn High School qualified for Intel ISEF at CREST-Jane Goodall Science Symposium with a project titled, "A Low Cost, Rapid Response Communication Link During a State of Emergency Using WiFi Mesh Networks".
- Rishima Mukherjee, 16, and Marlee Feltham, 17, both in grade 11 from West Linn High School qualified for Intel ISEF at CREST-Jane Goodall Science Symposium with a project titled, "Association of KIT Gene with Colorectal Cancer".
- Hannah Budroe, and Michelle Stevens, both 16, in grade 11 from Wilsonville High School qualified for Intel ISEF at CREST-Jane Goodall Science Symposium with a project titled, "Improving Coccolithophore (*Emiliana huxleyi*) Tolerance to Ocean Acidification Through Artificial Directional Selection".

Nearly 200 volunteer judges spent the day interviewing high school and middle school student researchers. The event is sponsored by Intel Corporation and Portland State University in addition to many individual contributions. Team OR is supported by NWSES sponsors McGeady Family Foundation, Micro Systems Engineering and AbSci. Donations are still being accepted to help cover the group's travel expenses, lodging and registration fees. Please contact Stephanie Jones at nwse@pdx.edu for more information.

| Special Award | Award Sponsor | Title | Student List | Organization | Mentor |
|--|---|--|------------------------------|-------------------------|---------------|
| Portland State University Scholarship | Portland State University | A Therapeutic Approach to Cytomegalovirus: Novel Method of Constructing Short Synthetic Promoters Using Randomized TFBS Combinations | Adit Gupta | Westview High School | Debbie Cooper |
| PSU Maseeh College of Engineering and Computer Science Computer Sciences Scholarship | PSU College of Engineering and Computer Science | Exploring Benford's Law | Charisse Hung | Cleveland High School | Joni Carlson |
| OSU General Scholarship | Oregon State University | Farming carbon: remediation of ocean acidification through carbon sequestration by nutrient supplemented <i>Emiliana huxleyi</i> populations | Abigail Hasler, Camille Rule | Wilsonville High School | Jay Schauer |

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| OSU College of Engineering Scholarship | Oregon State University | Single Chamber MFC: Role of Extracellular Phosphate on Heavy Metal Precipitation | Nathan Tidball | Wilsonville High School | Jim O'Connell |
| OSU College of Engineering Scholarship | Oregon State University | Increasing Pedestrian Safety Through Kinetic Tiles | Caitlin McCabe | West Linn High School | Nancy Monson |
| OSU General Scholarship | Oregon State University | Earth in a Gallon Sized Bottle: Modeling DMS Geoengineering | Nikolay Galtsev | West Linn High School | Jonathan Davies |
| University of Oregon Scholarships | University of Oregon | The Bioremediation of Nutrients in Field Spread Cow Manure by Turkey Tail and Blue Oyster Mushroom Wattles | Silas Waxter | Tillamook High School | Clair Thomas |
| University of Oregon Scholarships | University of Oregon | Radiochemistry and AI: Development of Targeted Emergency Response and Recovery System using ML Algorithms for use after a Nuclear Event | Anushka Nair | Lake Oswego High School | Charu Nair |
| University of Oregon Scholarships | University of Oregon | HOW ADIPOCYTE MORPHOLOGY VARIES WITH RED-SIDED GARTER SNAKE (Thamnophis sirtalis parietalis) REPRODUCTION CONDITION, SEX AND BODY CONDITION | Holden Anderson | Northwest Academy | Molly Sultany |

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| AbSci Future Innovators Internship Program | AbSci | The Bioremediation of Nutrients in Field Spread Cow Manure by Turkey Tail and Blue Oyster Mushroom Wattles | Silas Waxter | Tillamook High School | Clair Thomas |
| AbSci Future Innovators Internship Program | AbSci | Single Chamber MFC: Role of Extracellular Phosphate on Heavy Metal Precipitation | Nathan Tidball | Wilsonville High School | Jim O'Connell |
| AbSci Future Innovators Internship Program | AbSci | A Therapeutic Approach to Cytomegalovirus: Novel Method of Constructing Short Synthetic Promoters Using Randomized TFBS Combinations | Adit Gupta | Westview High School | Debbie Cooper |
| AbSci Future Innovators Internship Program | AbSci | A New Route to Practical Room Temperature Spin Gain Transistors: Organic Ferromagnetic Semiconductors | Arnob Das | Jesuit High School | Sabita Roy |
| AbSci Future Innovators Internship Program | AbSci | Allosteric Inhibition of the Carbonic Anhydrase IX for Anticancer Applications | Nandini Naidu | Valley Catholic High School | Rama Naidu |
| Outstanding Chemistry Project | American Chemical Society, Portland Section | A New Route to Practical Room Temperature Spin Gain Transistors: Organic Ferromagnetic Semiconductors | Arnob Das | Jesuit High School | Sabita Roy |
| Outstanding Research in Psychology | American Psychological Association | Can personality determine life satisfaction, | Minyan Chen | Oregon Episcopal School | Bevin Daglen |

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| | | altruism and health accurately? | | | |
| Biophysics Award | Biophysical Society | Cost and Material Effective 3d Printed Lower Leg Prosthetics | Keller Dungan | Sprague High School | Graham Dey |
| IEEE Special Awards | IEEE Oregon | An Amphibious Teleoperated Vehicle Designed to Collect Water Samples in Remote and Hazardous Environments | Ryker Bullis, Nathan Fritsch, Nicholas Ogden | Glencoe High School | Chris Steiner |
| IEEE Special Awards | IEEE Oregon | SmartSwimmer - A Novel Drowning Prevention System | Jessica Yu | West Linn High School | Shawn McDevitt |
| IEEE Special Awards | IEEE Oregon | Automatic Detection of Lipohypertrophy in Insulin Dependent Diabetics | Rohan Ahluwalia | Westview High School | Debbie Cooper |
| IEEE Special Awards | IEEE Oregon | A Low Cost, Rapid Response Communication Link During a State of Emergency Using WiFi Mesh Networks | Pooja Jain | West Linn High School | Michael George |
| IEEE Special Awards | IEEE Oregon | Radiochemistry and AI: Development of Targeted Emergency Response and Recovery System using ML Algorithms for use after a Nuclear Event | Anushka Nair | Lake Oswego High School | Charu Nair |
| Intel Excellence in Computer Science | Intel Corporation | Utilizing Blockchain to Revolutionize Privacy and | Divya Amirtharaj | Westview High School | Debbie Cooper |

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| | | Security of Medical Records | | | |
| Outstanding Chemistry Related Project | Iota Sigma Pi | Engineering Soybean Shells into a Functional Bioplastic | Katarina Pejcinovic | West Linn High School | Daniel Blankenship |
| Outstanding Aquatic Related Environmental Science Project | Lake Oswego Corporation | The Effect of Ocean Acidification on Native Olympic Oyster Reproduction and Larval Development | Anna Mattson | Tillamook High School | Clair Thomas |
| Mu Alpha Theta Award | Mu Alpha Theta | Discrete Derivatives of Random Matrix Models and the Gaussian Free Field | Gopal Goel | Krishna Homeschool | Gunjan Tiwari |
| NOAA's Taking the Pulse of the Planet | National Oceanic and Atmospheric Administration | Implementation of <i>Salvinia</i> sp. and <i>Eichhornia</i> sp. for the Phytoremediation, Rhizofiltration, and Recycling of Heavy Metals from Contaminated Aquatic Environments | Nastassia Goodson, Bryan To | Oregon Episcopal School | Peter Langley |
| Naval Excellence in Science and Engineering Award | Office of Naval Research, US Navy and Marine Corps | Testing Aircraft Deicing Procedures Using Conjugate Heat Transfer Simulations | Simon Hatcher | Oregon Episcopal School | Peter Langley |
| Naval Excellence in Science and Engineering Award | Office of Naval Research, US Navy and Marine Corps | Increasing Pedestrian Safety Through Kinetic Tiles | Caitlin McCabe | West Linn High School | Nancy Monson |
| Naval Excellence in Science and | Office of Naval Research, US Navy and Marine Corps | SmartSwimmer - A Novel Drowning Prevention System | Jessica Yu | West Linn High School | Shawn McDevitt |

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| Engineering Award | | | | | |
| Naval Excellence in Science and Engineering Award | Office of Naval Research, US Navy and Marine Corps | The Effect of Magnetic Field Strength on the Distance a Projectile is Launched | Leanne Fischer | Southridge High School | David Holz |
| Naval Excellence in Science and Engineering Award | Office of Naval Research, US Navy and Marine Corps | L.A.N.D. (Location Aware Non-destructive Decent) | Quinn Bennett | Delphian School | Diego Martinez |
| Tom Owen Award for Excellence in Statistics | Oregon Chapter of the American Statistical Association | Earth in a Gallon Sized Bottle: Modeling DMS Geoengineering | Nikolay Galtsev | West Linn High School | Jonathan Davies |
| Tom Owen Award for Excellence in Statistics | Oregon Chapter of the American Statistical Association | A Novel Approach Machine Learning Algorithms to Recognize Emotion From Speech to Aid Social Interaction | Anwasha Mukherjee | Westview High School | Debbie Cooper |
| Tom Owen Award for Excellence in Statistics | Oregon Chapter of the American Statistical Association | Radiochemistry and AI: Development of Targeted Emergency Response and Recovery System using ML Algorithms for use after a Nuclear Event | Anushka Nair | Lake Oswego High School | Charu Nair |
| Tom Owen Honorable Mention | Oregon Chapter of the American Statistical Association | A Novel Machine Learning Algorithm to Reduce Prediction Error and Accelerate Learning Curve for Very Large Datasets | Wenjun Hou | Jesuit High School | Zhaorong Hou |

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| Tom Owen Honorable Mention | Oregon Chapter of the American Statistical Association | The Peru-Ready Method for Optimizing Bioavailable Iron in Water | James Verheyden | Bend Science Station | David Bermudez |
| Tom Owen Honorable Mention | Oregon Chapter of the American Statistical Association | A comparison of the skin microbiomes of adoptive and biological mother-daughter pairs | Linnea Lane | Bend Science Station | David Bermudez |
| Tom Owen Honorable Mention | Oregon Chapter of the American Statistical Association | Association of KIT Gene with Colorectal Cancer | Rishima Mukherjee, Marlee Feltham | West Linn High School | Nancy Monson |
| Tom Owen Honorable Mention | Oregon Chapter of the American Statistical Association | Radiation vs. Aspirin | Ritika Jain | Westview High School | Debbie Cooper |
| Tom Owen Honorable Mention | Oregon Chapter of the American Statistical Association | Effect of moles of Sodium Chloride, Ammonium Chloride and Potassium Chloride on the endothermic process | Josh Ramsey | Gresham High School | Cyrus Harshfield |
| Tom Owen Honorable Mention | Oregon Chapter of the American Statistical Association | Analyzing Public Perception of Pacific Northwest Marine Mammals Through Behavioral Psychology: Which Factors Influence Attitudes Towards Environmental Conservation? | Lucianna Edenlord | Northwest Academy | Molly Sultany |
| Award for Excellence in Scientific Research in Environmental Health | Oregon Environmental Health Association | Desalination of Seawater Through Shock Electrodialysis | Ethan Dinh | Oregon Episcopal School | Bevin Daglen |

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| Outstanding Natural Resources Science Project | Pacific NW Research Station, USDA Forest Service | The Flamblity of Invasive Range Grass compared to Cheat Grass. | Ellie Justice | Grant Union High School | Randy Hennen |
| Outstanding Applied or Practical Chemistry Project by a Junior or Senior | Portland Industrial Chemists' Association/American Chemical Society | Engineering Soybean Shells into a Functional Bioplastic | Katarina Pejcinovic | West Linn High School | Daniel Blankenship |
| Sustainable Development Award | Ricoh Corporation | Enhancing environmental stability of p-i-n perovskite solar cells using novel hydrophobic nanomaterial encapsulation | Arjun Jain | Catlin Gabel School | Jeff Crosby |
| Outstanding Project in In Vitro Biology | Society for in Vitro Biology | Characterization of AAP Dependency in AAV Capsid Assembly | Lauren Li | Westview High School | Debbie Cooper |
| Vardhana Innovative Presentation | The Vardhana Family | Implications of Tardigrade Survival in Mars Conditions | Alexandria Montgomery | West Salem High School | Jonathan Williams |
| U.S. Air Force Outstanding Project | U.S. Air Force | Testing Aircraft Deicing Procedures Using Conjugate Heat Transfer Simulations | Simon Hatcher | Oregon Episcopal School | Peter Langley |
| U.S. Air Force Outstanding Project | U.S. Air Force | Radiation vs. Aspirin | Ritika Jain | Westview High School | Debbie Cooper |
| U.S. Air Force Outstanding Project | U.S. Air Force | Development of a Multidimensional Atmospheric Sensing Platform | Ryan Westcott | Oregon Episcopal School | Ryan Holland |
| U.S. Air Force Outstanding Project | U.S. Air Force | L.A.N.D. (Location Aware Non-destructive Decent) | Quinn Bennett | Delphian School | Diego Martinez |

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| Outstanding Use of the International System of Units | U.S. Metric Association | Increasing Pedestrian Safety Through Kinetic Tiles | Caitlin McCabe | West Linn High School | Nancy Monson |
| Outstanding Use of the International System of Units | U.S. Metric Association | A Novel Capillary Action Nutrient Supply System in Paper Based Microbial Fuel Cells | Rohan Wagh | Sunset High School | Korin Riske |
| Outstanding Use of the International System of Units | U.S. Metric Association | Enhancing environmental stability of p-i-n perovskite solar cells using novel hydrophobic nanomaterial encapsulation | Arjun Jain | Catlin Gabel School | Jeff Crosby |
| U.S. Regional Stockholm Junior Water Prize | Water Environment Federation | Polyacrylamide: a Revolutionary Method of Water Distillation | Jared Wieland | Wilsonville High School | Jim O'Connell |
| U.S. Regional Stockholm Junior Water Prize | Water Environment Federation | SBA-01: Space Born Aquaponics trial 1 | Siena Schofield, Heidi Rodriguez | Delphian School | Diego Martinez |
| Outstanding Project by an 11th Grade Student | Yale University Science and Engineering Association | Testing Aircraft Deicing Procedures Using Conjugate Heat Transfer Simulations | Simon Hatcher | Oregon Episcopal School | Peter Langley |

Category Awards

| Category | Place | Title | Student List | Organization | Mentor |
|-----------------|-------------|--|--------------|--------------------|--------------|
| Animal Sciences | First Place | The impact of HBOC-201 and fresh whole blood selective aortic arch perfusion therapy on viscoelastic measures of coagulation | Natalie Tan | Jesuit High School | Lara Shamieh |

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| Animal Sciences | Second Place | HOW ADIPOCYTE MORPHOLOGY VARIES WITH RED-SIDED GARTER SNAKE (Thamnophis sirtalis parietalis) REPRODUCTION CONDITION, SEX AND BODY CONDITION | Holden Anderson | Northwest Academy | Molly Sultany |
| Animal Sciences | Third Place | The Effect of Temperature on The Recovery From Adaptation In Cockroach Sensory Nerves | Sherry Zhao | Oregon Episcopal School | Peter Langley |
| Animal Sciences | Honorable Mention | How Does Distance From Water Affect Biodiversity? | Johannah Iyasele, Adelle Iseri | Mountainside High School | Lesley Stevens |
| Behavioral and Social Science | First Place | Can personality determine life satisfaction, altruism and health accurately? | Minyan Chen | Oregon Episcopal School | Bevin Daglen |
| Behavioral and Social Science | Second Place | Analyzing Public Perception of Pacific Northwest Marine Mammals Through Behavioral Psychology: Which Factors Influence Attitudes Towards Environmental Conservation? | Lucianna Edenlord | Northwest Academy | Molly Sultany |
| Behavioral and Social Science | Third Place | LearnSimply: An Interactive, Low-Cost, Offline Solution to the Education Crisis in Rural Areas and Third World Countries | Nisala Kalupahana | Glencoe High School | Susan Weidkamp |

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|--------------------------------|--------------|--|---------------------------------|-----------------------------|-------------------|
| Biochemistry | First Place | Allosteric Inhibition of the Carbonic Anhydrase IX for Anticancer Applications | Nandini Naidu | Valley Catholic High School | Rama Naidu |
| Biochemistry | Second Place | The Effect of Ocean Acidification on Native Olympic Oyster Reproduction and Larval Development | Anna Mattson | Tillamook High School | Clair Thomas |
| Biochemistry | Third Place | A Step Towards an Immunized World: Primer Design and Sequence Analysis of the Human Carbonic Anhydrase II Gene | Sophia Hawley | West Salem High School | Jonathan Williams |
| Cellular and Molecular Biology | First Place | A Therapeutic Approach to Cytomegalovirus: Novel Method of Constructing Short Synthetic Promoters Using Randomized TFBS Combinations | Adit Gupta | Westview High School | Debbie Cooper |
| Cellular and Molecular Biology | Second Place | Testing the effect of BCP in conjunction with Tamoxifen on the hinderance of breast cancer cells | Ingrid Doubleday, Simran Jhooty | Oregon Episcopal School | Bettina Gregg |
| Cellular and Molecular Biology | Third Place | Next generation intracellular delivery: Optimization of exosome isolation and novel exosome-mediated packaging for therapeutic targeting of cancer | Megha Joshi | South Salem High School | Nitin Joshi |

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|--------------------------------|-------------------|---|------------------------------|-------------------------|------------------|
| Cellular and Molecular Biology | Honorable Mention | The Effect of Different Dosages of Ibuprofen and Acetaminophen on 3T3 Fibroblasts | Rachel Lowell | Oregon Episcopal School | Peter Langley |
| Chemistry | First Place | A New Route to Practical Room Temperature Spin Gain Transistors: Organic Ferromagnetic Semiconductors | Arnob Das | Jesuit High School | Sabita Roy |
| Chemistry | Second Place | Effect of moles of Sodium Chloride, Ammonium Chloride and Potassium Chloride on the endothermic process | Josh Ramsey | Gresham High School | Cyrus Harshfield |
| Chemistry | Third Place | Using Li2O based glass to create solid state electrolytes for higher efficiency batteries | Vedanth Iyer | Sunset High School | Korin Riske |
| Chemistry | Honorable Mention | Polyacrylamide: a Revolutionary Method of Water Distillation | Jared Wieland | Wilsonville High School | Jim O'Connell |
| Computer Science and Robotics | First Place | Utilizing Blockchain to Revolutionize Privacy and Security of Medical Records | Divya Amirtharaj | Westview High School | Debbie Cooper |
| Computer Science and Robotics | Second Place | AlzhAssist - An autonomous solution to help people with Alzheimers's | Eesha Vasisht | Westview High School | Debbie Cooper |
| Computer Science and Robotics | Third Place | Development of a Multidimensional Atmospheric Sensing Platform | Ryan Westcott | Oregon Episcopal School | Ryan Holland |
| Computer Science and Robotics | Honorable Mention | A New Autonomous | Elijah Dodd, Jonathan Keller | West Linn High School | Julie McDevitt |

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| | | Holonomic Rolling Robot | | | |
| Energy and Environmental Engineering | First Place | Enhancing environmental stability of p-i-n perovskite solar cells using novel hydrophobic nanomaterial encapsulation | Arjun Jain | Catlin Gabel School | Jeff Crosby |
| Energy and Environmental Engineering | Second Place | A Novel Capillary Action Nutrient Supply System in Paper Based Microbial Fuel Cells | Rohan Wagh | Sunset High School | Korin Riske |
| Energy and Environmental Engineering | Third Place | Effect of Light Concentration and Temperature on Solar Water Splitting | Sebastian Marin-Quiros | Lakeridge High School | Luis Marin |
| Energy and Environmental Engineering | Honorable Mention | Reducing The Liquid Nitrogen Consumption of Superconducting Wires | Hayden Wierman | West Linn High School | Daniel Blankenship |
| Engineering: Bioengineering and Materials | First Place | Single Chamber MFC: Role of Extracellular Phosphate on Heavy Metal Precipitation | Nathan Tidball | Wilsonville High School | Jim O'Connell |
| Engineering: Bioengineering and Materials | Second Place | Enhancing Inorganic-Organic Lead Halide Perovskite Solar Cell Efficiency with Stabilizing Additives and Polymer-Templated Nucleation | Ke Shen | Sunset High School | Korin Riske |
| Engineering: Bioengineering and Materials | Third Place | A Novel Approach Machine Learning Algorithms to Recognize | Anwesha Mukherjee | Westview High School | Debbie Cooper |

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| | | Emotion From Speech to Aid Social Interaction | | | |
| Engineering: Bioengineering and Materials | Honorable Mention | The Peru-Ready Method for Optimizing Bioavailable Iron in Water | James Verheyden | Bend Science Station | David Bermudez |
| Engineering: Bioengineering and Materials | Honorable Mention | Synthetic Bamboo For urban search and rescue | John Thatcher, Brandon Wied | Wilsonville High School | Thomas Schuster |
| Engineering: Electrical and Mechanical | First Place | An Amphibious Teleoperated Vehicle Designed to Collect Water Samples in Remote and Hazardous Environments | Ryker Bullis, Nathan Fritsch, Nicholas Ogden | Glencoe High School | Chris Steiner |
| Engineering: Electrical and Mechanical | Second Place | SmartSwimmer - A Novel Drowning Prevention System | Jessica Yu | West Linn High School | Shawn McDevitt |
| Engineering: Electrical and Mechanical | Third Place | Copper Nanowire Networks for Next-Generation Flexible Touch Sensor Displays and Transparent Heaters | Musa Tahir | Oregon Episcopal School | Peter Langley |
| Engineering: Electrical and Mechanical | Honorable Mention | Increasing Pedestrian Safety Through Kinetic Tiles | Caitlin McCabe | West Linn High School | Nancy Monson |
| Engineering: Electrical and Mechanical | Honorable Mention | A Low Cost, Rapid Response Communication Link During a State of Emergency Using WiFi Mesh Networks | Pooja Jain | West Linn High School | Michael George |
| Environmental and Earth Sciences | First Place | Quakify: A Low-Cost, Crowdsourced, Real-Time Solution to | Harish Palani | Sunset High School | Korin Riske |

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| | | Earthquake Early Warning | | | |
| Environmental and Earth Sciences | Second Place | Multiple Time-Step Predictive Models for Hurricanes in the North Atlantic Basin Based on Machine Learning Algorithms | Aneesh Gupta | Oregon Episcopal School | Peter Langley |
| Environmental and Earth Sciences | Third Place | Farming carbon: remediation of ocean acidification through carbon sequestration by nutrient supplemented <i>Emiliana huxleyi</i> populations | Abigail Hasler, Camille Rule | Wilsonville High School | Jay Schauer |
| Environmental and Earth Sciences | Honorable Mention | Implications of Tardigrade Survival in Mars Conditions | Alexandria Montgomery | West Salem High School | Jonathan Williams |
| Mathematical Sciences | First Place | Discrete Derivatives of Random Matrix Models and the Gaussian Free Field | Gopal Goel | Krishna Homeschool | Gunjan Tiwari |
| Mathematical Sciences | Second Place | A Comparative Study of Probabilistic Primality Tests | Grant Chen | Westview High School | Debbie Cooper |
| Mathematical Sciences | Third Place | Uniform Random Number Generation with Bounded Termination | Raymond Berry | West Linn High School | Michael George |
| Mathematical Sciences | Honorable Mention | Integral Analysis Using Various Summation Methods | Abhi Rajendran | Valley Catholic High School | Raj Chinnaian |
| Medicine and Health Sciences | First Place | Automatic Detection of Lipohypertrophy in | Rohan Ahluwalia | Westview High School | Debbie Cooper |

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| | | Insulin Dependent Diabetics | | | |
| Medicine and Health Sciences | Second Place | Drug Testing Chemotherapies to Identify Kinase Pathways Affected By Hypertrophic Cardiomyopathy | Himani Sood | Westview High School | Debbie Cooper |
| Medicine and Health Sciences | Third Place | Are you at risk for a bad hair day? | Anna Nielsen, Sophia Nielsen | West Linn High School | Jonathan Davies |
| Medicine and Health Sciences | Honorable Mention | How Does Muscle Adaptation to Resistance Training in the Legs Affect Development of Muscular Strength? | Amy Kraemer | Amity High School | Cara Benfield |
| Microbiology | First Place | The Bioremediation of Nutrients in Field Spread Cow Manure by Turkey Tail and Blue Oyster Mushroom Wattles | Silas Waxter | Tillamook High School | Clair Thomas |
| Microbiology | Second Place | Advancing the Science of the Treatment and Pathogenesis of Alzheimer's Disease; the Effects of Fenugreek on Biofilm Disruption | Dana Zaidan, Athena Lackides | Wilsonville High School | Thomas Schuster |
| Microbiology | Third Place | Detection of Breast Cancer Brain Metastasis: Investigating a Novel Imaging Technique for MRI Images of the Central Nervous System Using | Jasmine Guliani, Madison Davis | School of Science and Technology | Melissa Shell |

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| Microbiology | Honorable Mention | Identifying Terrestrial Nitrogen Fixing Genera of Cyanobacteria | Camryn Pettenger-Willey | Wilsonville High School | Thomas Schuster |
| Physics and Astronomy | First Place | Developing an Optimized Wave Function Modeller | Lucas Braun | School of Science and Technology | Melissa Shell |
| Physics and Astronomy | Second Place | Modeling and Integrating the Orbit of Near-Earth Asteroid 2003 QB90 (242211) | David Fang | Oregon Episcopal School | Peter Langley |
| Physics and Astronomy | Third Place | Astrophysics of OH (1720 MHz) maser variability using the 20-meter radio telescope at the Green Bank Observatory | Sarah Daniels | Catlin Gabel School | Jeff Crosby |
| Physics and Astronomy | Honorable Mention | Testing Aircraft Deicing Procedures Using Conjugate Heat Transfer Simulations | Simon Hatcher | Oregon Episcopal School | Peter Langley |
| Plant Sciences | First Place | Lichen as Bioindicators: a study into the relationship between lichen thallus structures and their sensitivity to NO _x and SO _x | Isaac Klementis | Gresham High School | Julie Trisel |
| Plant Sciences | Second Place | Improving Coccolithophore (<i>Emiliana huxleyi</i>) Tolerance to Ocean Acidification Through Artificial Directional Selection | Hannah Budroe, Michelle Stevens | Wilsonville High School | Jay Schauer |
| Plant Sciences | Third Place | The Effect of Invasive English Ivy Essential Oils | Kara Putman | Tillamook High School | Clair Thomas |

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