



# CREST-Jane Goodall Science Symposium 2016

## ISEF Regional Special Awards

### **Outstanding Project in Atmospheric Science**

sponsored by the American Meteorological Society

- Hannah Budroe and Michelle Stevens - *The Effect of Ocean Acidification on the Lives of Sea Urchins*

### **Sustainable Development Award**

sponsored by the Ricoh Americas Corporation

- Beth Hoots - *Potentially Potable: The Desalination Capabilities of Halophilic Archaeobacteria N. asiatica, and H. lacusprofundi*

### **Taking the Pulse of the Planet Award**

sponsored by the National Oceanic and Atmospheric Administration

- Libby Williams - *Catalyst Refinement in the Industrialized Production of Biodiesel through Reactive Distillation*

### **Excellence in Scientific Research in Environmental Health**

sponsored by the Oregon Environmental Health Association

- Kyla Wiegand and Sarah Frechette - *A Stratous Design for an Improved Manure Lagoon Lining*

### **U.S. Regional Stockholm Junior Water Prize**

sponsored by the Water Environment Foundation

- Beth Hoots - *Potentially Potable: The Desalination Capabilities of Halophilic Archaeobacteria N. Asiatica, and H Lacusprofundi*
- Kyla Wiegand and Sarah Frechette - *A Stratous Design for an Improved Manure Lagoon Lining*

### **Outstanding Project in Materials Science**

sponsored by the ASM International Foundation

- Kyla Wiegand and Sarah Frechette - *A Stratous Design for an Improved Manure Lagoon Lining*

### **Intel Excellence in Computer Science**

sponsored by Intel Corporation

- Samuel Lim - *Online Metadata Extracted Using Minimalistic Open Sourced Modules to Analyze and Predict a Variety of Trends*

### **Outstanding Research in Psychology**

sponsored by the American Psychological Association

- Krista Wurscher - *Switching It Up: Developing an Activity-Based Measure of Network Switching*

## Naval Excellence in Science and Engineering Award

sponsored by the Office of Naval Research, US Navy / Marine Corps

- Nick Zimkas - *Applying Heliotropism to Solar Panels and Light Sensing*
- Austin Hohenshelt - *Water Desalination via Energy Efficient Capacitive Deionization*
- Mackenna Koppler - *Increasing the Efficiency of Anthocyanin-Based Dye Sensitized Solar Cells*
- Garrett Bonnell - *Water Filtration*

## ASU Walton Sustainability Solutions Award

sponsored by the Arizona State University Rob & Melani Walton Sustainability Solutions Initiative

- Mackenna Koppler - *Increasing the Efficiency of Anthocyanin-Based Dye Sensitized Solar Cells*
- Mia Palmer - *Utilizing 3D Printers to Synthesize an Inhibitor for the Effects of Ocean Acidifications on Crustaceans*

## Mu Alpha Theta Award

sponsored by the National School and Two-Year College Mathematics Honor Society

- Katie Kays and Alex Monello - *The Effect of Different Sports Ranking Methodologies on Predictability Accuracy*

## Best Use of SI: The International System of Units

sponsored by the U.S. Metric Association

- Dylan Martins - *The Effects of Commercial Beekeeping Antibiotics on the Endosymbionts of the Western Honey Bee*

## Most Outstanding Eleventh Grade Exhibit

sponsored by Yale Science & Engineering Association, Inc.

- Kyla Wiegand and Sarah Frechette - *A Stratous Design for an Improved Manure Lagoon Lining*

## Outstanding Achievement for Ability and Creativity in In Vitro Biology

sponsored by Society for In Vitro Biology

- Kristopher Wieland - *Fertilizer, Fungicides, and Phytophthora: A Study of the Symbiotic Relationships of Rhizobium and Mycorrhizae with the Soybean Plant*

## NASA Earth System Science Award

sponsored by National Aeronautics and Space Administration

- Eve Hallock and Jacob Dyer - *Inducing Polyploidy in Wisconsin Fast Plants Using Colchicine and Dichlorophenoxyacetic Acid*

## Award for Geoscience Excellence

sponsored by Association for Women Geoscientists

- Caitlin Corwin and Jennifer Ryu - *The Reclamation of Magnesium Salinized Soils*

## Award for Excellence in Behavioral Science

sponsored by the Oregon Research Institute

- Hana Taylor - *Age vs. Gender Bias*

# **CREST Special Awards**

## **Promising Young Scientist**

sponsored by CREST

- Kristin Schoenborn, Parker Martin, and Katy Burkartzmeyer
- Rishima Mukherjee and Emily Russell
- Sebastian Hardin and Collin Smith
- Dylan Burch
- Nalini Oliver and Faith Thompson
- Maddie Sand and Bella Rovani
- Kaelyn Cahill
- Makayla Bruce
- Gracey Hook and Faith Varga

## **Best Demonstration of Field Knowledge**

sponsored by CREST

- Elizabeth Diehl - *The Effect of pH on the Rate of Transpiration in Primula acaulis (Primrose) and Polystichum munitum (Western Sword Fern)*

## **Best Experimental Design**

sponsored by CREST

- Marlee Odell - *Neonicotinoid Addiction*

## **Noteworthy Logbook**

sponsored by CREST

- Dylan Martins - *The Effects of Commercial Beekeeping Antibiotics on the Endosymbionts of the Western Honey Bee*

## **Best “Digital” Project Board**

sponsored by CREST

- Kayla Gadd - *Going Viral: Analysis of Mutants of Archaeal Hyperthermophilic Sulfolobus solfataricus Spindle-shaped Viruses*

## **Best “Analog” Project Board**

sponsored by CREST

- Hannah Budroe and Michelle Stevens - *The Effect of Ocean Acidification on the Lives of Sea Urchins*

## **Best Use of Statistical Analysis**

sponsored by CREST

- Talia Lichtenberg - *Alzheimer’s Disease Risk Model Suggests Social Isolation and Lack of Education Have Great Significance in Risk*
- Mackenna Koppler - *Increasing the Efficiency of Anthocyanin-Based Dye Sensitized Solar Cells*

## **Most Creative Project Idea**

sponsored by CREST

- Chloe Kirwan and Dae Fettig - *Does Induced Boredom of High Schoolers Improve Their Creativity?*

## **Paul Sherman Award**

sponsored by CREST

- Evan McKinley - *Expedition to Plumb the Depths of Thor's Well*
- Kaylee Inloes - *Is It Worth Killing For?*
- Dana Zaidan - *The Effect of Caffeine Intake on the Oxygen Level in Blood*
- Jack Burns - *The Metabolism and Reproduction of L-carnitine*

## **Women In Engineering**

sponsored by CREST

- Kyla Wiegand and Sarah Frechette - *A Stratous Design for an Improved Manure Lagoon Lining*

## **Multi-Disciplinary Research**

sponsored by CREST

- Dylan Martins - *The Effects of Commercial Beekeeping Antibiotics on the Endosymbionts of the Western Honey Bee*

## **Very Special Awards**

### **Oregon State University College of Engineering Scholarship**

- Libby Williams - *Catalyst Refinement in the Industrialized Production of Biodiesel through Reactive Distillation*

### **Oregon State University General Scholarship**

- Talia Lichtenberg - *Alzheimer's Disease Risk Model Suggests Social Isolation and Lack of Education Have Great Significance in Risk*
- Kayla Gadd - *Going viral: Analysis of Mutants of Archaeal Hyperthermophilic Sulfolobus solfataricus Spindle-shaped Viruses*

### **International Sustainable World (Energy Engineering Environment) Project Olympiad**

Houston, Texas - April 26th to May 1st

sponsored by I-SWEEEP

- Dylan Martins - *The Effects of Commercial Beekeeping Antibiotics on the Endosymbionts of the Western Honey Bee*

## **Category Awards**

### **Behavioral Sciences: Cognitive Sciences**

#### **Honorable Mention**

- Rachel Vedder and Hannah Vedder - *The Effects of Cell Phone Distractions of WLHS Student Memory*
- Devyn Jacobson, Lindsey Olsen, and Christa Oakley - *How Reading a Short Story Before Bed Can Affect the Quality of Your Sleep*

#### **Third Place**

- Jacob Blohn and Tom Gomez - *The Effect of Distracted Driving on Reaction Time in Breaking Response*

#### **Second Place**

- Dennis Tang - *Behavioral Economics: Investing the Correlation Between Risk and Loss Aversion In Individuals*

### First Place

- Krista Wurscher - *Switching It Up: Developing an Activity-Based Measure of Network Switching*

## **Behavioral Sciences: Social Sciences**

### Honorable Mention

- Haven Lee - *How Grade Levels and Sex of Students Influence Perceptions of Health and Eating*
- Aliris Tang - *The Correlation Between the Linguistic Globalization of English and Western Diet*

### Third Place

- Hart Hancock - *Conformity Online: The Effects of Social Media Ratings on Individual Performance*

### Second Place

- Lily Dixon and Jocelyn Welberg - *The Correlation Between Geographical Origin on Music and Tempo (BPM)*

### First Place

- Jareth Anderson - *Conforming to Authority and Majority; What Leads to Blindly Following Questionable Ethics?*

## **Earth and Environmental Sciences**

### Honorable Mention

- Garrett Bonnell - *Water Filtration*

### Third Place

- Weston Miller and Erin Groppe - *The Effects of Soil Erosion*

### Second Place

- Hannah Budroe and Michelle Stevens - *The Effect of Ocean Acidification on the Lives of Sea Urchins*

### First Place

- Tanner Karp - *The Ability of Neonicotinoids to Metabolize Insecticides*

## **Engineering: Electrical, Mechanical, and Computer Sciences**

### Honorable Mention

- Raymond Berry - *CAPTCHA by Having Humans Drag A Ball*
- Alexander Molisani and Michael Wagoner - *Creating an App Compatible with an Arduino Gas Sensor*

### Third Place

- Nick Zimkas - *Applying Heliotropism to Solar Panels and Light Sensing*

### Second Place

- Christian Torralba and Eli Dodd - *Multi-Modal All Terrain Vehicle*

### First Place

- Samuel Lim - *Online Metadata Extracted Using Minimalistic Open Sourced Models to Analyze and Predict a Variety of Trends*

## **Engineering: Energy and Environmental**

### Honorable Mention

- Austin Hohenshelt - *Water Desalination via Energy Capacitive Deionization*
- Adam Steinhilber - *Miniaturized Carbon Scrubbers*

### Third Place

- Hayden Wilde and Haley Prusse - *Algae: A Bio-cleaner and Biofuel?*

### Second Place

- Mackenna Koppler - *Increasing the Efficiency of Anthocyanin-Based Dye Sensitized Solar Cells –Year II*

### First Place

- Libby Williams - *Catalyst Refinement in the Industrialized Production of Biodiesel through Reactive Distillation*

## **Life Sciences**

### Honorable Mention

- Caitlin Corwin and Jennifer Ryu - *The Reclamation of Magnesium Salinized Soils*
- Mackenzie Weber and Andrea Swenson - *Combating Urban Malnutrition Through Small-Scale Indoor Greenhouse Gardening*

### Third Place

- Maxi Muessig - *Combining Rates in Cattleya Explants During Micropropagation*

### Second Place

- Eve Hallock and Jacob Dyer - *Inducing Polyploidy in Wisconsin Fast Plants Using Colchicine and Dichlorophenoxyacetic Acid*

### First Place

- Kristopher Wieland - *Fertilizer, Fungicides, and Phytophthora: A Study of Symbiotic Relationships of Rhizobium and Mycorrhizae with the Soybean Plant*

## **Materials Science and Bioengineering**

### Honorable Mention

- Marlee Feltham - *Time and Temperature Effect on the Stability of a Soft Granular Gel*
- Mia Palmer - *Utilizing 3D Printers to Synthesize an Inhibitor for the Effects of Ocean Acidification on Crustaceans*

### Third Place

- Nate Davidson - *Investigating Multiple Solutions to Reduce Shunt Migration*

### Second Place

- Nathan Tidball - *Bronze and Bacteria*

### First Place

- Kyla Wiegand and Sarah Frechette - *A Stratous Design for an Improved Manure Lagoon Lining*

## **Medicine and Health Sciences**

### Honorable Mention

- Natalie Spencer and Carina Kirby - *Effect of Streptokinase on Coagulation Factor in Blood Clots*
- Claire James - *The Affect of Juiced Fruit vs Solid Fruit on Blood Sugar*

### Third Place

- Eleanor Johnson and Isabella Fenner - *Sleep Deprivation and the Secretion of Proteins in C. Elegans*

### Second Place

- JiHyun An - *Heart Disease and Gut Bacteria: Targeting Lactobacillus rhamnosus and Escherichia coli*

### First Place

- Benjamin Sebastian and Daniel Tang - *New Evidence for a Potential Citalopram Hydrobromide Mediated Mechanism Influencing the Suppression of Serotonergic Neurons during Brain Development*

## **Microbiology**

### Honorable Mention

- Lily Burhop - *The Effect of Papain on Biofilm Growth in Staphylococcus epidermidis*
- Lauren Griffith - *The Effects of Glyphosate on the Growth of the Probiotic Gut Microbe Lactobacillus*

### Third Place

- Beth Hoots - *Potentially Potable: The Desalination Capabilities of Halophilic Archaeobacteria N.*

### Second Place

- Kayla Gadd - *Going Viral: Analysis of Mutants of Archaeal Hyperthermophilic Sulfolobus solfataricus*

### First Place

- Dylan Martins - *The Effects of Commercial Beekeeping Antibiotics on the Endosymbionts of the Western Honey Bee*

## **Physics, Chemistry, and Mathematics**

### Honorable Mention

- Paul Muessig - *The Effect of Processing and Aging on the Vitamin C Content in Bell Peppers*
- Katie Kays and Alex Monello - *The Effect of Different Sports Ranking Methodologies on Predictability Accuracy*

### Third Place

- Jessica Yu - *The Characterization and Optimization of Surface Plasmon Resonance in Coupled Gold Nanostructures for Sensing Using the FDTD Method*

### Second Place

- Lydia VanWinkle - *Utility of Labeled Nanomaterials for Investigating Environmental Behavior*

### First Place

- Talia Lichtenberg - *Alzheimer's Disease Risk Model Suggests Social Isolation and Lack of Education Have Great Significance in Risk*

## **Advancing to the Intel Northwest Science Expo**

Adam Steinhilber

Alexander Molisani and Michael Wagoner

Austin Hohenshelt

Benjamin Sebastian and Daniel Tang

Beth Hoots

Caitlin Corwin and Jennifer Ryu

Chloe Kirwan and Dae Fetting

Christian Torralba and Eli Dodd

Claire James

Dennis Tang

Dylan Burch

Dylan Martins

Eleanor Johnson and Isabella Fenner

Eve Hallock and Jacob Dyer

Garrett Bonnell

Hannah Budroe and Michelle Stevens

Hart Hancock

Hayden Wilde and Haley Prusse

Jacob Blohn and Tom Gomez

Jareth Anderson

Jessica Yu

JiHyun An

Kaelyn Cahill

Katie Kays and Alex Monello

Mia Palmer

Nalini Oliver and Faith Thompson

Natalie Spencer and Carina Kirby

Nate Davidson

Nathan Tidball

Nick Zimkas

Paul Muessig

Raymond Berry

Samuel Lim

Talia Lichtenberg

Tanner Karp

Weston Miller and Erin Groppe

Kayla Gadd

Krista Wurscher

Kristopher Wieland

Kyla Wiegand and Sarah Frechette

Lauren Griffith

Libby Williams

Lily Burhop

Lily Dixon and Jocelyn Welberg

Lydia Vanwinkle

Mackenna Koppler

Mackenzie Weber and Andrea Swenson

Makayla Bruce

Marlee Feltham

Maxi Muessig

## **Intel ISEF Observers**

### **Travel to Intel ISEF in Phoenix, Arizona**

Observing at the Intel International Science & Engineering Fair

- JiHyun An - *Heart Disease and Gut Bacteria: Targeting Lactobacillus rhamnosus and Escherichia coli*
- Nathan Tidball - *Bronze and Bacteria*

# Best Of Fair

## Advancing to Intel ISEF in Phoenix, Arizona

Competing at the Intel International Science & Engineering Fair

- Libby Williams - *Catalyst Refinement in the Industrialized Production of Biodiesel through Reactive Distillation*
- Talia Lichtenberg - *Alzheimer's Disease Risk Model Suggests Social Isolation and Lack of Education Have Great Significance in Risk*
- Daniel Tang and Benjamin Sebastian - *New Evidence for a Potential Citalopram Hydrobromide Mediated Mechanism Influencing the Suppression of Serotonergic Neurons during Brain Development*