



Undergraduate Research Conference at Missouri S&T

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Apr 11th, 2016 - 5:00 PM

## 12th Annual Undergraduate Research Conference Winners

Missouri University of Science and Technology

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## **S&T announces Undergraduate Research Conference winners**

The winners of the 12th annual Undergraduate Research Conference at Missouri University of Science and Technology have been announced. The conference, which was held on April 11 on the S&T campus, featured oral and poster exhibitions that represented work from students in nearly every major at Missouri S&T. Winners were awarded a cash prize of \$750. Second- and third-place finishers received \$500 and \$250, respectively.

During the conference, over 100 Missouri S&T students presented their current research projects to the public. For the full list of all the students who participated and their research abstracts, visit [ugs.mst.edu/experientiallearning/ugrc](http://ugs.mst.edu/experientiallearning/ugrc).

The following students won poster presentation awards.

### **Arts and humanities poster session:**

First place— Madison Morris, a sophomore in biological sciences from Tulsa, Oklahoma, for research titled “Stitching the Way towards Modern Medicine: The Renaissance Advances of Ambroise Pare.” Morris’ research advisor is Dr. Michael Bruening, associate professor of history and political science.

Second place— Carrie Levy, a senior in engineering management from Columbia, Missouri, for research titled “Holocaust Victims Forever.” The research advisor is Dr. Shannon Fogg, chair and associate professor of history and political science.

### **Engineering poster session:**

First place—Chase Herman, a junior in chemical engineering from Nixa, Missouri, for research titled “Cellular Hitchhiking on Microparticles to Alleviate Skin Injury.” Herman’s research advisor is Dr. Sutapa Barua, assistant professor of chemical and biochemical engineering.

Second place—Tim Victor, a senior in mechanical engineering from Ballwin, Missouri, for research titled “Optimization of Piezoelectric Cantilever-Based Windmill.” Victor’s research advisor is Dr. Lian Duan, assistant professor of mechanical and aerospace engineering.

Third place— Francisco Das Chagas Silva Neto, a freshman from New York, for research titled “Treatment performance of oily wastewater using ceramic membranes.” The research advisor is Dr. Muthanna Al-Dahhan, chair and professor of chemical and biochemical engineering.

### **Research proposal poster session:**

First place—Mason Donnell, a senior in biological sciences, from Willard, Missouri, for research titled “Investigating Cytokinesis in Yeast May Lead to Novel Cancer Treatments.” Donnell’s research advisor is Dr. Katie Shannon, associate teaching professor of biological sciences.

Second place—Delaney DeJanes, a senior in biological sciences from Independence, Missouri, and Heather McCoy, a senior in biological sciences from Granite City, Illinois, for research titled “Breaking Plaque.” Their research advisors are Dr. Katie Shannon, associate teaching professor of biological sciences and Dr. Dave Westenberg, associate professor of biological sciences.

Third place—Justin Clinton, a senior in geology and geophysics from Rolla, Missouri, for research titled, “Analog Modeling of ‘Thick Skin’ Crustal Deformation During Continental Collision.” His research advisor is William Chandonia, a graduate student in geology and geophysics from Atlanta, Georgia.

#### Sciences poster session:

First place—Daniel Park, a senior in biological sciences from Rolla, Missouri, for research titled “Angiogenic Effects of Mesenchymal Stem Cells and Bioglass on Chick CAM Vasculature.” His research advisor is Dr. Julie Semon, associate professor of biological sciences.

Second place—Kent Gorday, a junior in physics from Foristell, Missouri, for research titled “Self-Assembling Gold Nanorod Arrays Using DNA Origami.” The research advisor is Dr. Risheng Wang, assistant professor of chemistry.

Third place—Lisa Gutgesell, a sophomore in biological sciences from St. Louis, Missouri, for research titled “The Effects of Bioglass on Mesenchymal Stem Cells.” The research advisor is Dr. Julie Semon, associate professor of biological sciences.

#### Social science poster session:

First place—Samuel Smith, a senior in management and information systems from Bourbon, Missouri, for research titled “User Assessment of E-Commerce Security Cues.” His research advisor is Dr. Fiona Nah, professor of business and information technology.

Second place—Lindsey Carlson, senior in information science and technology from Republic, Missouri, and Nick Rollins, a senior in information science and technology from Waynesville, Missouri, for research titled “Designing Reason Support Systems to Increase Satisfaction, Enjoyment and Intention to Use.” The research advisor is Dr. Nathan Twyman, assistant professor of business and information technology.

The following students won oral presentation awards.

#### Arts and humanities oral presentation:

First place—Chad McDaniel, a senior in civil engineering from Cleveland, Missouri, for research titled “Comparing the Water Distribution Systems Discussed by Vitruvius with Actual Roman Systems.” McDaniel’s research advisor is Dr. Michael Bruening, associate professor of history and political science.

Second place—Saki Urushidani, a senior in environmental engineering from Webster Groves, Missouri, for research titled “Overwhelming Culture: Environmental Concerns and Cultural Considerations in Guatemala.” Urushidani’s advisor is Dr. Audra Merfeld-Langston, interim chair and associate professor of arts, languages, and philosophy.

Third place—Joel Merz, a sophomore in history from Rolla, Missouri, for research titled “Constantine the Great: His life through the accounts of Eusebius and the Origo Constantini.” Merz’s research advisor is Dr. Michael Bruening, associate professor of history and political science.

#### Engineering oral presentation:

First place—Niklas Melton, a senior in aerospace engineering from Riverside, Missouri, for research titled “Enhancing Supervisory Training Signals with Environmental Reinforcement Learning Using Adaptive Dynamic Programming.” Melton’s research advisor is Dr. Donald Wunsch, the Mary K. Finley Missouri Distinguished Professor and professor of electrical and computer engineering.

Second place—Timon Abraham, a sophomore in chemical engineering from Augusta, Georgia, for research titled “Preparation and Synthesis of Vanadium-Metal-Organic Frameworks (MIL - 101) for Acid-Gas Adsorption and Separation.” Abraham’s research advisor is Dr. Fateme Rezaei, assistant professor of chemical and biochemical engineering.

Second place—Melissa Vidal, a senior in chemical engineering from Lima, Peru, for research titled “CFD Simulation Study of Interstitial Nano-particle flow in Tumor-on-a-chip.” Vidal’s research advisor is Dr. Joontaek Park, assistant professor of chemical and biochemical engineering.

Third place—Caitlin Bocker, a senior in chemical engineering from Crystal Lake, Illinois, for research titled “Nanopartical Shape Synergistically Inhibits Cancer.” Bocker’s research advisor is Dr. Sutapa Barua, an assistant professor of chemical and biochemical engineering.

#### Sciences oral presentation:

First place—Madison Mara, a junior in biological sciences from Rolla, Missouri, for research titled “Comparing Phenotypes of IQG1 Mutants.” Mara’s research advisor is Dr. Katie Shannon, associate teaching professor of biological sciences.

Second place—Ava Hughes, a senior in biological sciences from St. Louis, for research titled “Isolation and Characterization of Novel Halo-Acidophilic Microorganisms Present in Hypersaline Lakes from Western Australia.” Hughes’ research advisor is Dr. Melanie Mormile, professor of biological sciences.

The 2016-2017 OURE Fellows recipients are:

Robert Block, a senior in chemistry from Rolla, Missouri, for research titled "Application of Voice Analysis Programs to Quantify Fatigue." Block's research advisor is Dr. Matthew Thimgan, assistant professor of biological sciences.

Patrick Brennan, a senior in chemical engineering from St. Charles, Missouri, for research titled "Coating of Metal-Organic Frameworks onto Polymeric Hollow Fibers for CO<sub>2</sub> Capture." His research advisors are Dr. Ali Rownaghi, assistant research professor of chemical and biochemical engineering and Dr. Fateme Rezaei, assistant professor of chemical and biochemical engineering.

Natalie Holste, a junior in biological sciences from Romeoville, Illinois, for research titled "Synthetic Biology Approach to making Drought Tolerant Bradyrhizobium japonicum." Holste's research advisor is Dr. David Westenberg, associate professor of biological sciences.

Samuel Holtmeier, a junior in information science and technology from Washington, Missouri, for research titled "Influence of Prior autism Spectrum Disorder (ASD) Knowledge on Teachers' Ability for Early ASD Diagnosis." Holtmeier's research advisor is Dr. Bih-Ru Lea, associate professor of business and information technology.

Morgan Hovis, a senior in chemical engineering from Fredericktown, Missouri, for research titled "The Separation of Ethane and Ethylene via Adsorbent Materials." Hovis' research advisor is Dr. Fateme Rezaei, assistant professor of chemical and biochemical engineering.

Scott Neustadt, a sophomore in information science and technology from O'Fallon, Missouri, for research titled "Visualizing Genetic Influence on Autism Spectrum Disorders (ASD) Diagnosis: the Roles of Colors and High Dimensional Graphs." Neustadt's research advisor is Dr. Bih-Ru Lea, associate professor of business and information technology.