2017 ASEF and NARSEF Categories & Subcategories

JUNIOR DIVISION: Grades 5-8

- BEHAVIORAL & SOCIAL SCIENCES
- BOTANY & ZOOLOGY
- CHEMISTRY
- ENGINEERING
- ENVIRONMENTAL
- MATH & COMPUTERS
- MEDICINE & HEALTH
- PHYSICAL SCIENCE

SENIOR DIVISION: Grades 9-12

ANIMAL SCIENCES

Animal Behavior • Cellular Studies • Development • Ecology • Genetics • Nutrition and Growth • Physiology • Systematics and Evolution • Other

BEHAVIORAL AND SOCIAL SCIENCES

Clinical & Developmental Psychology • Cognitive Psychology • Physiological Psychology • Sociology and Social Psychology • Other

BIOCHEMISTRY

Analytical Biochemistry • General Biochemistry • Medicinal Biochemistry • Structural Biochemistry • Other

BIOMEDICAL AND HEALTH SCIENCES

Disease Diagnosis • Disease Treatment • Drug Development and Testing • Epidemiology • Nutrition • Physiology and Pathology • Other

BIOMEDICAL ENGINEERING

Biomaterials and Regenerative Medicine • Biomechanics • Biomedical Devices • Biomedical Imaging • Cell and Tissue Engineering • Synthetic Biology • Other

CELLULAR AND MOLECULAR BIOLOGY

Cell Physiology • Genetics • Immunology • Molecular Biology • Neurobiology • Other

CHEMISTRY

Analytical Chemistry • Computational Chemistry • Environmental Chemistry • Inorganic Chemistry • Materials Chemistry • Organic Chemistry • Physical Chemistry • Other

COMPUTATIONAL BIOLOGY AND BIOINFORMATICS

Biomedical Engineering • Computational Biomodeling • Computational Evolutionary Biology • Computational Neuroscience • Computational Pharmacology • Genomics • Other

EARTH AND ENVIRONMENTAL SCIENCES

Atmospheric Science • Climate Science • Environmental Effects on Ecosystems • Geosciences • Water Science • Other

EMBEDDED SYSTEMS

Circuits • Internet of Things • Microcontrollers • Networking and Data Communication • Optics • Sensors • Signal Processing • Other

ENERGY: CHEMICAL

Alternative Fuels • Computational Energy Science • Fossil Fuel Energy • Fuel Cells and Battery Development • Microbial Fuel Cells • Solar Materials • Other

ENERGY: PHYSICAL

Hydro Power • Nuclear Power • Solar • Sustainable Design • Thermal Power • Wind • Other

ENGINEERING MECHANICS

Aerospace and Aeronautical Engineering • Civil Engineering • Computational Mechanics • Control Theory • Ground Vehicle Systems • Industrial Engineering-Processing • Mechanical Engineering • Naval Systems • Other

ENVIRONMENTAL ENGINEERING

Bioremediation • Land Reclamation • Pollution Control • Recycling and Waste Management • Water Resources Management • Other

MATERIALS SCIENCE

Biomaterials • Ceramic and Glasses • Composite Materials • Computation and Theory • Electronic, Optical, and Magnetic Materials • Nano Materials • Polymers • Other

MATHEMATICS

Algebra • Analysis • Combinatorics, Graph Theory, and Game Theory • Geometry and Topology • Number Theory • Probability and Statistics • Other

MICROBIOLOGY

Antimicrobial and Antibiotics • Applied Microbiology • Bacteriology • Environmental Microbiology • Microbial Genetics • Virology • Other

PHYSICS AND ASTRONOMY

Atomic, Molecular, and Optical Physics • Astronomy and Cosmology • Biological Physics • Computational Physics and Astrophysics • Condensed Matter and Materials • Instrumentation • Magnetics, Electromagnetics and Plasmas • Mechanics • Nuclear and Particle Physics • Optics, Lasers, Masers • Quantum Computation • Theoretical Physics • Other

PLANT SCIENCES

Agronomy • Growth and Development • Ecology • Genetics/Breeding • Pathology • Physiology • Systematics and Evolution • Other

ROBOTICS AND INTELLIGENT MACHINES

Biomechanics • Cognitive Systems • Control Theory • Robot Kinematics • Machine Learning • Other

SYSTEMS SOFTWARE

Algorithms • Cybersecurity • Databases • Programming Languages • Operating Systems • Other

TRANSLATIONAL MEDICAL SCIENCE

Disease Detection and Diagnosis • Disease Prevention • Disease Treatment and Therapies • Drug Identification and Testing • Pre-Clinical Studies • Other

Alabama's 2016 ISEF delegation

From Alabama to the world

Twenty three high school students from across Alabama attended the 2016 Intel International Science and Engineering Fair (ISEF) in Phoenix. More than 1,700 students from 70 countries, regions or territories competed for prizes at the event.

Eighteen of the Alabama students earned the right to compete at ISEF by winning a top prize at their regional science and engineering fair, or at the state science fair. The others attended as student observers, serving as volunteers and attending special workshops for improving research skills.

Those attending were: Michael Prevost, Rahul Lall, Sarah Bowman, Travis Gunn, Elijah Greene, Rowan El-Qishawi, Rozan El-Qishawi, Mahmoud El-Quishawi, Hannah James, Danika Louw, Jamie Lim, Davina Ho, Conner Reed, Edmond Strickland III, Daniel Vogler, Alexis Jones, Sharee Riggs, Makayla Prevost, Mary Alice Jouve, Arjun Lakhanpal, DeMarcus Campbell, Kenneth Jiao and Lillian Vilardi.

Awards won by the students included three special awards and six category awards.

SPECIAL AWARDS

International Council of Systems Engineering

Drew Prevost, 18, Covenant Christian Academy, Huntsville, Ala.

Development and Systems Integration of a Modular Power Factor Corrected Pre-regulator, LiFePO4 Battery Charger, DC Motor Controller and Battery Monitoring System

China Association for Science and Technology, $1,200

Danika Louw, 16, Spirit Catholic High School, Tuscaloosa, Ala.

Highly Effective Hybrids

Society for Experimental Mechanics, 1st award, $2,500

Danika Louw, 16, Spirit Catholic High School, Tuscaloosa, Ala.

Highly Effective Hybrids

CATEGORY AWARDS

ENGINEERING MECHANICS, 2ND PLACE ($1,500)

Edmond Strickland, 18, South Montgomery County Academy, Grady, Ala.

Dual Purpose Muffler

BIOCHEMISTRY, 3RD PLACE ($1,000)

Alexis Jones, 16, Auburn High School, Auburn, Ala.

Assessment of Macro and Micro-Nutrients in a Recycled Supplement for Canines

ENERGY: PHYSICAL, 3RD PLACE ($1,000)

Travis Gunn, 18, and Elijah Greene, 17, Hewitt Trussville High School, Trussville, Ala.

Renewable Power Pole

PLANT SCIENCES, 3RD PLACE ($1,000)

Rowan Said El-Quishawi, 17, and Rozan Said El-Quishawi, 16, Hoover High School, Hoover, Ala.

Asian Lady Beetles: Infestation or Curation?

EMBEDDED SYSTEMS, 4TH PLACE ($500)

Drew Prevost, Covenant Christian Academy, Huntsville, Ala.

Development and Systems Integration of a Modular Power Factor Corrected Pre-regulator, LiFePO4 Battery Charger, DC Motor Controller, and Battery Monitoring System

ENGINEERING MECHANICS, 4TH PLACE ($500)

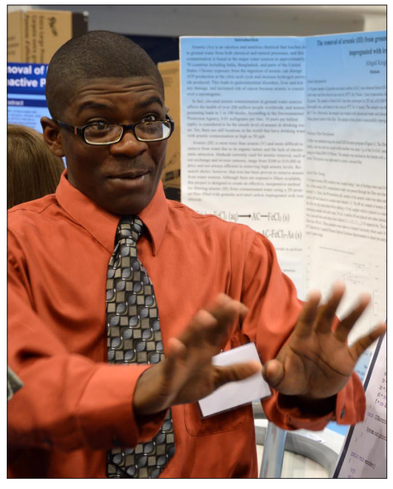
Danika Louw, 16, Holy Spirit Catholic High School, Tuscaloosa, Ala.

Highly Effective Hybrids

Why we support student scientists and engineers

The future of science and engineering exploration begins with our youth. By encouraging and nurturing their quest for discovery, our community develops a steady stream of young people who will be the next generation of science and engineering leaders. These talented individuals will be working to provide the answers to questions which have yet to be asked.

For this reason, we support both the Alabama Science & Engineering Fair (ASEF) and the North Alabama Regional Science & Engineering Fair (NARSEF).



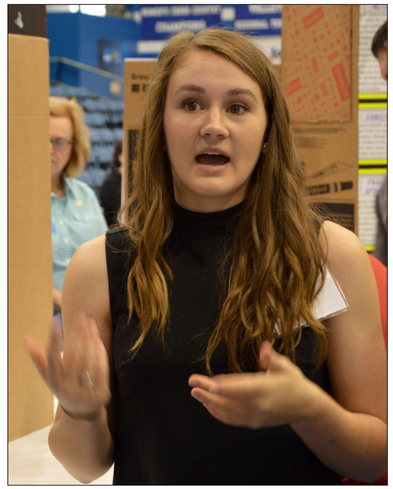
ASEF is a statewide competition, with the best students and their projects coming from regional science fairs around the state.

NARSEF is the competition for the North Alabama region.

This year we anticipate more than 250 students, plus their parents, families and teachers, will attend each 2017 fair on our campus. Each student is competing against the best and brightest students from around the state for category prizes, scholarships and an opportunity to compete in the 2017 Intel International Science & Engineering Fair in Los Angeles.

Students put time and dedication into developing their skills in math, statistics, ethics, critical thinking, scientific methodology, multiple field learning, and public speaking. This is a wonderful learning experience that can significantly impact a student's perspective of science.

Under the guidance of our fair directors — Dr. Shankar Mahalingam and Dr. James Miller — the University of Alabama in Huntsville is hosting the North Alabama Regional Science & Engineering Fair on ***March 8-9 & 14, 2017***, and the Alabama Science & Engineering Fair on ***March 31-April 2, 2017***. This will mark the 21th straight year the events have been held on the UAH campus.



In 2016, our corporate donors and supporters ensured the success of the fairs by creating opportunities for students who might not have had the resources to participate. UAH continues to provide resources, personnel, facilities, and funding — and together we strive to make the fair experience a memorable one for the students.

North Alabama Regional Science & Engineering Fair

March 22-23, 2017 • University Fitness Center • narsef.uah.edu

NARSEF questions? Contact Jacob Kerstiens at jacob.kerstiens@uah.edu

Alabama Science & Engineering Fair

April 6-8, 2017 • www.uah.edu/ASEF

ASEF questions? Contact Vanessa Colebaugh at colebav@uah.edu

THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

COLLEGE OF SCIENCE • COLLEGE OF ENGINEERING

Donor Response Form

2017 Alabama Science & Engineering Fair
2017 North Alabama Regional Science & Engineering Fair

Company Name: _____

Address: _____

City, State, Zip: _____

Contact Person: _____

Title: _____ Phone: _____

E-Mail Address: _____ Fax: _____

Please check the area you would like to support as an ASEF ☐ or NARSEF ☐ supporter.
(Please use duplicate forms if supporting both.)

Past category donors have priority selection until a reasonable date. The list of categories is on the back of this form.

☐ **ASEF PATRON DONOR** ($5,000 or more) $_____ Patron Donor recognition includes:

- Sponsoring 2 category selections (see attached list)

  Category #1: _____ Category #2: _____ Alternate: _____
- An opportunity for up to 2 ASEF judges from your company to review and recommend top winners

  Judge #1 Name: _____ Phone: _____ Email: _____

  Judge #2 Name: _____ Phone: _____ Email: _____
- Donor recognition in all publications and advertisements
- Lunch and private tour of student projects
- Special recognition at Grand Awards Ceremony and Special Awards Banquet (times and days listed below)
- Invitation to present award for category winners at Grand Awards Ceremony

☐ **CATEGORY DONOR** ($2,500 or more) $_____ Category Donor recognition includes:

- Sponsoring 1 category (see attached list): Preferred Category: _____ Alternate: _____
- Recognition in all publications and advertisements
- An opportunity for 1 ASEF judge from your company to review and recommend top winners

  Judge Name: _____ Phone: _____ Email: _____
- Invitation to the Grand Awards Ceremony and the Special Awards Banquet (times and days listed below)
- Invitation to present award for category winners at Grand Awards Ceremony
- Sponsoring at a $2500 or higher level also qualifies you to be a President's Corporate and Foundation partner. You will be recognized as a partner on the website and included in any honor roll publications.

☐ **FAIR SUPPORTER** (Other) $_____ Fair Supporter recognition includes:

- Recognition in all publications and advertisements
- Invitation to attend the Grand Awards ceremony and Special Awards reception

Please send a high resolution copy of your logo (JPEG or PNG files preferred) to Phil Gentry at gentry@nsstc.uah.edu

Event Schedule: **NARSEF**, ***March 22-23, 2017*** **ASEF**, ***April 6-8, 2017***
Tour of Projects: NARSEF, ***Wednesday, March 22, 2017***; ASEF, ***Friday, April 7, 2017***
ASEF Special Awards reception: ***Friday, April 7, 2017*** at the U.S. Space & Rocket Center
ASEF Grand Awards: ***Saturday, April 8, 2017***, Chan Auditorium, UAH Business Administration Building

Signature: _____ Date: _____

☐ Please provide us with an invoice for the amount above, and send to the attention of: _____

Thank you for your support! Please make checks payable to UAHF and designate for ASEF or NARSEF
Return this form along with payment in the enclosed envelope to:

Office of University Advancement
The University of Alabama in Huntsville
Shelbie King Hall, Third Floor
Huntsville, AL 35899 Attention: Science Fairs