2021 ASEF Categories & Subcategories

JUNIOR DIVISION: Grades 6-8 – Same as Senior Division except for Cellular & Molecular Biology and Microbiology

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

CHEMISTRY, BIOCHEMISTRY and MATERIALS SCIENCE
Analytical Chemistry • Computational Chemistry • Environmental Chemistry • Inorganic Chemistry • Materials Chemistry • Organic Chemistry • Physical Chemistry Analytical Biochemistry • General Biochemistry • Medicinal Biochemistry • Structural Biochemistry Biomaterials • Ceramic and Glasses • Composite Materials • Computation and Theory • Electronic, Optical, and Magnetic Materials • Nano Materials • Polymers • Other

BIOMEDICAL AND HEALTH SCIENCES
Disease Diagnosis • Disease Treatment • Drug Development and Testing • Epidemiology • Nutrition • Physiology and Pathology, Biomedical Engineering • Computational Biomedicine • Computational Evolutionary Biology • Computational Neuroscience • Computational Pharmacology • Genomics

Biomaterials and Regenerative Medicine • Biomechanics • Biomedical Devices • Biomedical Imaging • Cell and Tissue Engineering • Synthetic Biology • Disease Detection and Diagnosis • Disease Prevention • Disease Treatment and Therapies • Drug Identification and Testing • Pre-Clinical Studies • Other

CELLULAR & MOLECULAR BIOLOGY AND MICROBIOLOGY
Cell Physiology • Genetics • Immunology • Molecular Biology • Neurobiology • Antimicrobial and Antibiotics • Applied Microbiology • Virology • Other

COMPUTER SCIENCES AND MATHEMATICS
Algorithms • Cybersecurity • Databases • Programming Languages • Operating Systems • Biomechanics • Cognitive Systems • Control Theory • Robot Kinematics • Machine Learning • Algebra • Analysis • Combinatorics, Graph Theory, and Game Theory • Geometry and Topology • Number Theory • Probability and Statistics • Circuits • Internet of Things • Microcontrollers • Networking and Data Communication • Optics • Sensors • Signal Processing • Other

EARTH AND ENVIRONMENTAL SCIENCES
Atmospheric Science • Climate Science • Environmental Effects on Ecosystems • Geosciences • Water Science • Bioremediation • Land Reclamation • Pollution Control • Recycling and Waste Management • Water Resources Management • Other

ENERGY: CHEMICAL & PHYSICAL
Alternative Fuels • Computational Energy Science • Fossil Fuel Energy • Fuel Cells and Battery Development • Microbial Fuel Cells • Solar Materials • Hydro Power • Nuclear Power • Solar • Sustainable Design • Thermal Power • Wind • Other

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

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 Plasma • 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

SPECIAL AWARDS
Oracle Academy: Award of $5,000 for outstanding project in the systems software category Cary Xiao, Alabama School of Mathematics and Science, Tuscaloosa, AL.

Wolfram Research, Inc: Mathematica software for all Alabama ISEF Finalists and Observers

CATEGORY AWARDS

Awards won by the students included two category and one special award.

From Alabama to the World

2019 Alabama ISEF Delegation

Twenty one students from across Alabama attended the 2019 Intel International Science and Engineering Fair (ISEF), held May 12-17 in Phoenix, Arizona. More than 1,800 students from 80 countries, regions or territories competed for prizes in the event.

Eighteen of the students from Alabama had earned the right to compete at this prestigious event by winning a top prize at their regional or at the state science fair. The other three students attended as student observers – these observers served as event volunteers and attended special workshops for improving research skills.


Awards won by the students included two category and one special award.
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 the Alabama Science & Engineering Fair (ASEF). ASEP is a statewide competition, with the best students and their projects coming from regional science fairs around the state. This year we anticipate more than 150 students will attend our fair virtually. 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 2021 Regeneron International Science & Engineering Fair which will also be held virtually this year.

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 a committee of dedicated individuals the Alabama Academy of Science is hosting Alabama Regional Science & Engineering Fair (ASEF) on April 9 & 10, 2021. In the past, our corporate donors and supporters ensured the success of the fair by creating opportunities for students who might not have had the resources to participate. The Alabama Academy of Science will provide resources, personnel, and funding — and together we strive to make the fair experience a memorable one for the students.

Alabama Science & Engineering Fair
April 9-10, 2021 ASEF

ASEF questions? Contact Dr. Virginia Vilardi at virginia.vilardi@elmoreco.com (334-799-0104) or Dr, Jack Shelley Tremblay jstremblay@southalabama.edu (251) 460-6883 or: (251) 460-6320