

**2022 USEF - Senior Division**

Category and Rank	Name	School	Project Title
Behavioral & Social Sciences - First Place	Sierra Sun	The Waterford School	A Behavioral Study of COVID-19 Public Health Messaging: Self Interest, Vulnerability, and Racial Bias
Behavioral & Social Sciences - Second Place	Corinne Simao	Juan Diego Catholic High	A qualitative evaluation of educational retention of postgraduate practicing pharmacists in leadership and advocacy advanced pharmacy practice experience
Behavioral & Social Sciences - Third Place	Susan Arcos-Flores & Nathan Flores	Salt Lake Center for Science Education (SLCSE)	Latino Disparities In High School's Mental Health Resources and Distribution
Biology & Microbiology - First Place	Megan Tandar	West High	Repressed Autophagy in Aging is Associated with Blood-Brain-Barrier Permeability and Changes in Blood Vessel Thickness
Biology & Microbiology - Second Place	Krishnam Goel	West High	Microbiology of Virus and Bacterial Interactions with Silver Nanoparticles for Therapeutic Purposes
Biology & Microbiology - Third Place	Priyanka Mathews	Hillcrest High	Identifying Lead Compounds for Cyanobacterial Quorum Sensor Inhibitors for Use in Harmful Algal Bloom (HAB) Control through Deep Learning Methods
Biology & Microbiology - Fourth Place	Riya Soneji	West High	Developing a Phage Library to Identify Potential Coronavirus D-Peptide Inhibitors
Chemistry & Biochemistry - First Place	Dora Meiwes	West High	Investigating the Properties of Paint Binders and Their Applications
Chemistry & Biochemistry - Second Place	Nathaniel Bean	Juan Diego Catholic High	The Biosynthetic Production of Terpene Precursor in Escherichia coli and Saccharomyces cerevisiae for use in the Chemical Synthesis of Eleutherobin
Chemistry & Biochemistry - Third Place	Emma Baker	Juan Diego Catholic High	cBIN1-Regulated T-Tubule Protein Distribution and Localization in Cardiomyocytes
Chemistry & Biochemistry - Fourth Place	Ethan Mouritsen & Hudson Clark	Grantsville High	Melting Metals
Civil & Environmental Engineering - First Place	Ruchi Agarwal	Rowland Hall	Water Scarcity in Arid West: What is the Role of Harmful Algal Blooms?
Civil & Environmental Engineering - Second Place	Felix Keil	City Academy	Colonizing The Arctic: Our Last Great Hope
Computer Science & Applied Computational Methods - First Place	Yaniv Taussky	West High	Simulating Prey and Predator Evolution
Computer Science & Applied Computational Methods - Second Place	Aaron Wang	Skyline High	A Deep Learning Model to Forecast the Impact of COVID-19 on Traffic Demand in Salt Lake County
Computer Science & Applied Computational Methods - Third Place	Jayashabari Shankar	Hillcrest High	Human Coronaviruses: Unique Viruses that do not follow Syzbalski's Rule and have a High Composition of Adenine-Thymine Bonds
Computer Science & Applied Computational Methods - Fourth Place	Vishwa Murugappan	Hillcrest High	Surface Curvature Analysis of Digital Breast Tomosynthesis Images for Breast Cancer Detection
Earth & Environmental Sciences - First Place	Aarav Parikh	Hillcrest High	Growth Analysis and Cultivation of Algae Using Rotating Algae Biofilm Reactors
Earth & Environmental Sciences - Second Place	Zejun Li	West High	Imaging Calcite in Trilobite Lenses Using Confocal Raman Microscopy
Earth & Environmental Sciences - Third Place	Hazel Wilde	Salt Lake Center for Science Education (SLCSE)	Exploring Golden Eagle Diets Through Isotopes
Electrical Engineering - First Place	Jameson Thackeray	Murray High School	Geo-Thermoelectric Generator
Energy: Chemical & Physical - First Place	Gates Washburn	Grantsville High	Amateur Rocketry
Energy: Chemical & Physical - Second Place	Parker Webb & Racer Bishop	Stansbury High School	The Gutter Wheel
Energy: Chemical & Physical - Third Place	Diego Escobar & Maximilian Theriault	Salt Lake Center for Science Education (SLCSE)	Fast Food Fuel
Mechanical & Materials Engineering - First Place	Marianne Liu	West High	Employing the DiSCoVeR Machine Learning Algorithm to Discover New Novel High-Performing Superhard Materials
Mechanical & Materials Engineering - Second Place	Evan Weinstein & Aiden Gandhi & Eli Hatton	Rowland Hall	Engine-ering the Future of Air Travel

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Mechanical & Materials Engineering - Third Place	Ellis Chalker & Collin Stanley	Salt Lake Center for Science Education (SLCSE)	Mechanical Knee Exoskeleton
Mechanical & Materials Engineering - Fourth Place	Joseph Staker	Stansbury High School	Fruit Infuser water bottle
Medicine, Health Sciences, & Biomedical Engineering - First Place	Mercedes Randhahn	St. Joseph High School	Investigating the Cytotoxicity of Centella asiatica Methanolic Leaf Extracts on MDA-MB-231 Human Breast Cancer Cells
Medicine, Health Sciences, & Biomedical - Second Place	Sowmya Paritala & Saisha Vankayalapati	Hillcrest High	Development of Novel, Selective, Orally Available Small Molecule CDK-9 Inhibitors for Prostate Cancer Therapy - Mechanistic studies
Medicine, Health Sciences, & Biomedical Engineering - Third Place	Sharayu Senthilkumar	West High	The Effect of Sonication Duration on MR-guided focused ultrasound (MRgFUS) Lesion Size and Accuracy
Medicine, Health Sciences, & Biomedical Engineering - Fourth Place	Brendon Young	West High	Exploring the Effects of a Point Mutation in the 5' UTR of APC Discovered in a Patient
Physics, Astronomy & Math - First Place	Lukas Mesicek	Salt Lake Center for Science Education (SLCSE)	Photorealistic Simulations of General Relativity: Using the Finite Element Method to Solve, Test, and Analyze the Einstein Field Equations
Physics, Astronomy & Math - Second Place	Warren Ellsworth	Hillcrest High	Eliminating Dereliction of Traditional Monte Carlo Modus Operandi through a Novel Near-Continuously-Random, Non-Discrete MC Method Built for Stringent, Legitimate, and Efficacious Risk Estimates in Many Scenarios
Plant Sciences - First Place	Ethan Yrungaray & Isabella DeLagerheim	Salt Lake Center for Science Education (SLCSE)	Saving Our Soil (SOS): Finding a Reliable Base to Create Soil Stability Around the Receding Great Salt Lake

Regeneron ISEF Grand Champion Winners			
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Winner	Megan Tandar	West High	Repressed Autophagy in Aging is Associated with Blood-Brain-Barrier Permeability and Changes in Blood Vessel Thickness
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Winner	Evan Weinstein & Aiden Gandhi & Eli Hatton	Rowland Hall	Engine-ering the Future of Air Travel