

2019 Mercer Science and Engineering Fair Results

Division: Junior **Category:**
Runner Up Princeton Plasma Physics Laboratory Award **From:** Princeton Plasma Physics Lab

Mina Kanbular Sink or Swim
Chapin School

Lucas Zapata-Sanin Developing and Testing a Color Identification System for People Who Have Difficulty Identifying Colors.
Timberlane Middle

Division: Elementary **Category:**
3rd Place Princeton Plasma Physics Laboratory Award **From:** Princeton Plasma Physics Lab

Liam Johnson The effect of type of helmet on melons when dropped from different heights
St. Ann's School

Division: Elementary **Category:**
2nd Place Princeton Plasma Physics Laboratory Award **From:** Princeton Plasma Physics Lab

Arnesh Kundu POWER - Peltier Operated Wax based Electricity Reserve. New method to store & use solar heat energy for electricity generation.
West Windsor-Plainsboro Upper Elementary

Division: Junior **Category:**
1st Place Princeton Plasma Physics Laboratory Award **From:** Princeton Plasma Physics Lab

Charlotte LS Michaluk Saving Sinking Ships: Mitigating the Risk of Bulk Cargo Liquefaction
Timberlane Middle

2019 Mercer Science and Engineering Fair Results

Division: Elementary

Category:

Earle S. Rommel Communications Award

From: Mercer Science and Engineering Club

Arnesh Kundu

West Windsor-Plainsboro Upper Elementary

POWER - Peltier Operated Wax based Electricity Reserve. New method to store & use solar heat energy for electricity generation.

Division: Junior

Category:

Earle S. Rommel Communications Award

From: Mercer Science and Engineering Club

Alessandra Santoro

St. Ann's School

The effect of different sugars on the creation of rock candy

Division: Senior

Category:

Earle S. Rommel Communications Award

From: Mercer Science and Engineering Club

Mayada Farraj

Trenton Central High

Cooking with Chemistry

Division: Senior

Category:

Abbott Marshlands

From: Abbott Marshlands

Sonja MS Michaluk

Hopewell Valley Central High

A Novel Method of Monitoring the Health of our Global Fresh Water Supply using DNA Barcoding of Chironomidae (Diptera)

Division: Junior

Category:

Honorable Mention

From: Theobald Smith Society

Samantha Marie Davis

St. Ann's School

The Effect of Different Spices on Fungal and Bacteria Growth on Bread.

Michelle Tong

West Windsor-Plainsboro High North

Engineering membraneless organelles via optical induction of protein phase separation

2019 Mercer Science and Engineering Fair Results

Division: Senior
3rd

Category:
From: Theobald Smith Society

Shlok Rohatagi
West Windsor-Plainsboro High North

The Pharmacokinetics of Monoclonal Antibodies
in Tumor Bearing Mice

Division: Senior
2nd

Category:
From: Theobald Smith Society

Ziqi Shi
Princeton International School of Mathematics and Science

Study of Caenorhabditis Elegans' Ionotropic
Receptors' Activity under Stress

Division: Senior
1st

Category:
From: Theobald Smith Society

Sonja MS Michaluk
Hopewell Valley Central High

A Novel Method of Monitoring the Health of our
Global Fresh Water Supply using DNA
Barcoding of Chironomidae (Diptera)

Division: Junior
Best Use of Photography

Category:
From: New Jersey Camera & One Hour
Photo

Oliver Li
Community Middle School

The Roles of Compost, Fertilizer, and Sugar in
Plant Growth Rates

2019 Mercer Science and Engineering Fair Results

Division: Senior

Category:

Certificate of Achievement

From: Air Force Research Laboratory

Zhamilya Bilyalova

Princeton International School of Mathematics and Science

Methodology for analysis of crop health using aerial photogrammetry

Jesse Cheng

West Windsor-Plainsboro High South

IoT Device for Blood Glucose Monitoring via Exhaled Breath

Om Deshmukh

West Windsor-Plainsboro High South

Guardians of the Coast - Autonomous Smart Robotics for Coastal Plastic Collection and Detection

Eugene Gao

Princeton International School of Mathematics and Science

Colorimetric Detection of Carbendazim Pesticide

Tajus Gopal

The Pennington School

Attitudes Towards Learning Disabilities and ADHD Based on Race, Ethnicity and Socioeconomic Status

Saanika Swarraj Kulkarni

West Windsor-Plainsboro High South

Mapping Indoor Visual Comfort for Energy Efficiency and Sustainable Development

Division: Junior

Category:

U.S Navy/Marine Corps Award

From: U.S. Navy/Marine Corps

Charlotte LS Michaluk

Timberlane Middle

Saving Sinking Ships: Mitigating the Risk of Bulk Cargo Liquefaction

Lucas Zapata-Sanin

Timberlane Middle

Developing and Testing a Color Identification System for People Who Have Difficulty Identifying Colors.

2019 Mercer Science and Engineering Fair Results

Division: Senior

Category:

U.S Navy/Marine Corps Award

From: U.S. Navy/Marine Corps

Ziqi Han

Princeton International School of Mathematics and Science

Construction of Acrylamide Hydrogel
Electrolyte Battery

Sonja MS Michaluk

Hopewell Valley Central High

A Novel Method of Monitoring the Health of our
Global Fresh Water Supply using DNA
Barcoding of Chironomidae (Diptera)

Division: Senior

Category:

Stockholm Junior Water Prize

From: Water Environment Federation

Sonja MS Michaluk

Hopewell Valley Central High

A Novel Method of Monitoring the Health of our
Global Fresh Water Supply using DNA
Barcoding of Chironomidae (Diptera)

Jiangdi Wang

Princeton International School of Mathematics and Science

Developing An Innovative Reusable Water
Filtration Device For Toxic Elements Treatment
With Metal Organic Framework

Michael Zhang

Lawrenceville School

Rational Design and Controllable Synthesis of
Zinc Oxide (ZnO) Nanoparticles for Water
Purification

Division: Senior

Category:

NJWEA Water Environment Award

From: New Jersey Water Environment
Association

Sonja MS Michaluk

Hopewell Valley Central High

A Novel Method of Monitoring the Health of our
Global Fresh Water Supply using DNA
Barcoding of Chironomidae (Diptera)

2019 Mercer Science and Engineering Fair Results

Division: Senior

NASA Earth System Science

Category:

From: National Aeronautics and Space Administration

Om Deshmukh

West Windsor-Plainsboro High South

Guardians of the Coast - Autonomous Smart Robotics for Coastal Plastic Collection and Detection

Division: Senior

NOAA Award

Category:

From: National Oceanic and Atmospheric Administration

Zhamilya Bilyalova

Princeton International School of Mathematics and Science

Methodology for analysis of crop health using aerial photogrammetry

Division: Senior

Superior Achievement

Category:

From: ASM International Foundation

Jingtong Zhu

Princeton International School of Mathematics and Science

Synthesis and Characterization of Novel Macroactivator for Polyether-nylon 6 Block Copolymer

Division: Senior

Superior Achievement

Category:

From: American Psychological Association

Tajus Gopal

The Pennington School

Attitudes Towards Learning Disabilities and ADHD Based on Race, Ethnicity and Socioeconomic Status

2019 Mercer Science and Engineering Fair Results

Division: Senior

Superior Achievement

Category:

From: American Meteorological Society

Zhamilya Bilyalova

Princeton International School of Mathematics and Science

Methodology for analysis of crop health using aerial photogrammetry

Om Deshmukh

West Windsor-Plainsboro High South

Guardians of the Coast - Autonomous Smart Robotics for Coastal Plastic Collection and Detection

Division: Senior

Special Award

Category:

From: Association for Women Geoscientists

Sonja MS Michaluk

Hopewell Valley Central High

A Novel Method of Monitoring the Health of our Global Fresh Water Supply using DNA Barcoding of Chironomidae (Diptera)

Division: Senior

Superior Achievement

Category:

From: Society for In Vitro Biology

Shlok Rohatagi

West Windsor-Plainsboro High North

The Pharmacokinetics of Monoclonal Antibodies in Tumor Bearing Mice

Division: Senior

Intel Excellence in Computer Science

Category:

From: Intel Corp.

Saanika Swarraj Kulkarni

West Windsor-Plainsboro High South

Mapping Indoor Visual Comfort for Energy Efficiency and Sustainable Development

Division: Senior

Special Award

Category:

From: Mu Alpha Theta

Yizhen Chen

Princeton International School of Mathematics and Science

The Behavior of Iterations of Compositions of Inversions Preserving a Circle

2019 Mercer Science and Engineering Fair Results

Division: Junior

Category:

Special Award

From: U.S. Metric Association

Aryana Deshpande

Chapin School

The Effect of Wing Loading on the Glide Ratio of a Paper Airplane

Division: Senior

Category:

Excellence in Engineering

From: Yale Science and Engineering Association

Zach Brunet

Princeton International School of Mathematics and Science

LiDAR Based Obstacle Avoidance

Division: Senior

Category:

The Regional Ricoh Sustainable Development Award

From: Ricoh Corp.

Saanika Swarraj Kulkarni

West Windsor-Plainsboro High South

Mapping Indoor Visual Comfort for Energy Efficiency and Sustainable Development

Division: Elementary

Category: General Science

Honorable Mention

From: Mercer Science and Engineering Club

Layla Ringelheim Riley

Perry L. Drew Elementary

Ice Ice Maybe?

Renee MI Schemmann

Home school

Ooey Gluey Slime

Kees P. Williams

St. Ann's School

To Rinse or Not To Rinse

2019 Mercer Science and Engineering Fair Results

Division: Junior

Category: General Science

Honorable Mention

From: Mercer Science and Engineering Club

Atishay Jain

Chapin School

Water Filtration

Hadrian Lin

Chapin School

Warm and Growing: The Effect of Temperature on Seed Germination

Ruthie Schemmann

Home school

How Structure of Writing Affects Data Recall

Katherine Young

Chapin School

Stretchy Slime

Division: Senior

Category: Behavioral and Social Science

Honorable Mention

From: Mercer Science and Engineering Club

Shayla James

Princeton International School of Mathematics and Science

The Effect of Music Tempo on Working Memory and Attention Span

Yufan Lu

Princeton International School of Mathematics and Science

Putting Yourself in Other People's Shoes: Does Perspective Taking Increase the Accuracy of Recognizing Emotion in Pictures?

Runqian Wang

Princeton International School of Mathematics and Science

Incorporating Frame Image and Frame Sequence into Ensemble Learning Networks to Improve the Accuracy of Physical Bullying-Detect

2019 Mercer Science and Engineering Fair Results

Division: Senior

Category: Biochemistry, Biology and Medical

Honorable Mention

From: Mercer Science and Engineering Club

Arnold Chung

Home school

Blockade of MEK and autophagy synergistically inhibits KRAS lung cancer proliferation

Ananya D Gangavarapu

Princeton International School of Mathematics and Science

Automated Disease Detection (ADD) for multiple specialty areas using AI and Deep Learning

Cheng Guo

Princeton International School of Mathematics and Science

An Investigation on the Sexual Prevalence of Congenital Heart Defects and its Relationship with Gene Expression

Division: Senior

Category: Chemistry and Materials

Honorable Mention

From: Mercer Science and Engineering Club

Mayada Farraj

Trenton Central High

Cooking with Chemistry

Ziqi Han

Princeton International School of Mathematics and Science

Construction of Acrylamide Hydrogel Electrolyte Battery

Yichen Li

Princeton International School of Mathematics and Science

The Improvement of Biomolecules-Coated Titanium Dioxide Nanoparticles as Sunscreen Materials

Haiyu Zhang

Princeton International School of Mathematics and Science

Reconstruction of Historical Pigment Making Process

Jingtong Zhu

Princeton International School of Mathematics and Science

Synthesis and Characterization of Novel Macroactivator for Polyether-nylon 6 Block Copolymer

2019 Mercer Science and Engineering Fair Results

Division: Senior **Category:** Environmental Science and Engineering

Honorable Mention **From:** Mercer Science and Engineering Club

Om Deshmukh
West Windsor-Plainsboro High South
Guardians of the Coast - Autonomous Smart Robotics for Coastal Plastic Collection and Detection

Jiangdi Wang
Princeton International School of Mathematics and Science
Developing An Innovative Reusable Water Filtration Device For Toxic Elements Treatment With Metal Organic Framework

Division: Elementary **Category:** General Science
Meritorious Achievement **From:** Mercer Science and Engineering Club

William Black
St. Ann's School
Bounce Energy - The Effect of Air Pressure on a Ball's Bounce.

Jillian Helen Yao
St. Ann's School
Race Your Marbles: The Effects of a Liquid's Viscosity on Velocity

Division: Junior **Category:** General Science
Meritorious Achievement **From:** Mercer Science and Engineering Club

Brody Coddington
Chapin School
Tomato Juice Leaves Beet and Pickle Juice Salty and Ice Heated

Sean Geherty
St. Ann's School
The Effect of Water, Salt, and Vinegar on the Oxidation of Steel Wool and The Effect of Coatings on Preventing Oxidation

Mina Kanbular
Chapin School
Sink or Swim

2019 Mercer Science and Engineering Fair Results

Division: Senior

Category: Behavioral and Social Science

Third Place

From: Mercer Science and Engineering Club

Ryan Yuandi Hu

The Peddie School

Marijuana Legalization and Local Crime Rate

Division: Senior

Category: Software and Embedded Systems

Third Place

From: Mercer Science and Engineering Club

Zhamilya Bilyalova

Princeton International School of Mathematics and Science

Methodology for analysis of crop health using aerial photogrammetry

Jesse Cheng

West Windsor-Plainsboro High South

IoT Device for Blood Glucose Monitoring via Exhaled Breath

Division: Junior

Category:

Broadcom Masters Award

From: Society For Science & The Public

Aryana Deshpande

Chapin School

The Effect of Wing Loading on the Glide Ratio of a Paper Airplane

Oliver Li

Community Middle School

The Roles of Compost, Fertilizer, and Sugar in Plant Growth Rates

Charlotte LS Michaluk

Timberlane Middle

Saving Sinking Ships: Mitigating the Risk of Bulk Cargo Liquefaction

Lucas Zapata-Sanin

Timberlane Middle

Developing and Testing a Color Identification System for People Who Have Difficulty Identifying Colors.

2019 Mercer Science and Engineering Fair Results

Division: Junior

Category:

Lemelson Early Inventor Prize

From: Society For Science & The Public

Lucas Zapata-Sanin

Timberlane Middle

Developing and Testing a Color Identification System for People Who Have Difficulty Identifying Colors.

Division: Elementary

Category: General Science

Outstanding Achievement

From: Mercer Science and Engineering Club

Liam Johnson

St. Ann's School

The effect of type of helmet on melons when dropped from different heights

Yuvraj Manchanda

Village School

Alexa vs. Google home 2.0

Division: Junior

Category: General Science

Outstanding Achievement

From: Mercer Science and Engineering Club

Aryana Deshpande

Chapin School

The Effect of Wing Loading on the Glide Ratio of a Paper Airplane

Lucas Zapata-Sanin

Timberlane Middle

Developing and Testing a Color Identification System for People Who Have Difficulty Identifying Colors.

Division: Senior

Category: Behavioral and Social Science

Second Place

From: Mercer Science and Engineering Club

Tajus Gopal

The Pennington School

Attitudes Towards Learning Disabilities and ADHD Based on Race, Ethnicity and Socioeconomic Status

2019 Mercer Science and Engineering Fair Results

Division: Senior **Category:** Biochemistry, Biology and Medical
Second Place **From:** Mercer Science and Engineering Club

Sihan Fei Uncovering Genetic Relationships between Sleep
Princeton International School of Mathematics and Science and Alzheimer's Disease

Division: Senior **Category:** Chemistry and Materials
Second Place **From:** Mercer Science and Engineering Club

Zeqing Li Development of an Automatic Processing
Princeton International School of Mathematics and Science Package for AFM Images Based on R Language

Division: Senior **Category:** Environmental Science and
Second Place Engineering
From: Mercer Science and Engineering Club

Eugene Gao Colorimetric Detection of Carbendazim Pesticide
Princeton International School of Mathematics and Science

Division: Senior **Category:** General Engineering
Second Place **From:** Mercer Science and Engineering Club

Chenhao Hu Development of aspheric optics with 3D
Princeton International School of Mathematics and Science fabrication methods

Division: Senior **Category:** Software and Embedded Systems
Second Place **From:** Mercer Science and Engineering Club

Muhua Xu Crowd Estimation via Thermal Images Analyzed
Princeton International School of Mathematics and Science by Convolutional Neural Network

2019 Mercer Science and Engineering Fair Results

Division: Elementary **Category:** General Science
Superior Achievement **From:** Mercer Science and Engineering Club

Arnesh Kundu
West Windsor-Plainsboro Upper Elementary
POWER - Peltier Operated Wax based Electricity Reserve. New method to store & use solar heat energy for electricity generation.

Gabrielle Rose O'Neill
Community Park Elementary
Screen Time And Your Sleep: A Hindrance Or A Help?

Division: Junior **Category:** General Science
Superior Achievement **From:** Mercer Science and Engineering Club

Oliver Li
Community Middle School
The Roles of Compost, Fertilizer, and Sugar in Plant Growth Rates

Charlotte LS Michaluk
Timberlane Middle
Saving Sinking Ships: Mitigating the Risk of Bulk Cargo Liquefaction

Division: Elementary **Category:**
Most Superior **From:** Rider University

Gabrielle Rose O'Neill
Community Park Elementary
Screen Time And Your Sleep: A Hindrance Or A Help?

Division: Junior **Category:**
Most Superior **From:** Rider University

Charlotte LS Michaluk
Timberlane Middle
Saving Sinking Ships: Mitigating the Risk of Bulk Cargo Liquefaction

2019 Mercer Science and Engineering Fair Results

Division: Senior

Category:

Most Superior

From: Rider University

Sonja MS Michaluk

Hopewell Valley Central High

A Novel Method of Monitoring the Health of our
Global Fresh Water Supply using DNA
Barcoding of Chironomidae (Diptera)

Division: Senior

Category: Biochemistry, Biology and Medical

First Place

From: Mercer Science and Engineering Club

Michelle Tong

West Windsor-Plainsboro High North

Engineering membraneless organelles via optical
induction of protein phase separation

Division: Senior

Category: Chemistry and Materials

First Place

From: Mercer Science and Engineering Club

Songtao Li

Princeton International School of Mathematics and Science

A Facile, Green, Low-cost, and Recyclable
Nanocomposite Film for Rapid Visible Light
Catalyzed Degradation of Dye Pollutants

Division: Senior

Category: Energy

First Place

From: Mercer Science and Engineering Club

Arun Ayalur Raman

West Windsor-Plainsboro High North

Testing the Thermal Performance of Open-
source Solar Cooker Designs Relative to
Commercial Cookers

Division: Senior

Category: Environmental Science and
Engineering

First Place

From: Mercer Science and Engineering Club

Sonja MS Michaluk

Hopewell Valley Central High

A Novel Method of Monitoring the Health of our
Global Fresh Water Supply using DNA
Barcoding of Chironomidae (Diptera)

2019 Mercer Science and Engineering Fair Results

Division: Senior

Category: General Engineering

First Place

From: Mercer Science and Engineering Club

Michael Zhang

Lawrenceville School

Rational Design and Controllable Synthesis of Zinc Oxide (ZnO) Nanoparticles for Water Purification

Division: Senior

Category: Mathematics, Physics and Astronomy

First Place

From: Mercer Science and Engineering Club

Yizhen Chen

Princeton International School of Mathematics and Science

The Behavior of Iterations of Compositions of Inversions Preserving a Circle

Division: Senior

Category: Software and Embedded Systems

First Place

From: Mercer Science and Engineering Club

Saanika Swarraj Kulkarni

West Windsor-Plainsboro High South

Mapping Indoor Visual Comfort for Energy Efficiency and Sustainable Development

Division: Senior

Category:

2nd Runner Up

From: Mercer Science and Engineering Club

Michael Zhang

Lawrenceville School

Rational Design and Controllable Synthesis of Zinc Oxide (ZnO) Nanoparticles for Water Purification

Division: Senior

Category:

1st Runner-up

From: Mercer Science and Engineering Club

Michelle Tong

West Windsor-Plainsboro High North

Engineering membraneless organelles via optical induction of protein phase separation

2019 Mercer Science and Engineering Fair Results

Division: Senior

Category:

Grand Prize

From: Mercer Science and Engineering Club

Sonja MS Michaluk

Hopewell Valley Central High

A Novel Method of Monitoring the Health of our
Global Fresh Water Supply using DNA
Barcoding of Chironomidae (Diptera)
