

Division Awards

About Division Awards

Top (first place) winners in each research field (see Section Awards on following page) move on to a second interdisciplinary round of review to determine the top high school, undergraduate and graduate presentations. In addition to the recognitions mentioned for Section Award winners, Division winners receive a small cash award.

Graduate Division Award

[The Role of Plant Dispersal on Ecosystem Function](#)

Presenter: Luka Negoita (Syracuse University)

Mentor: Jason Fridley (Syracuse University)

Undergraduate Division Award

[Examining the Role of Human Alpha-Synuclein in Cadmium Homeostasis and Transporter Systems in a Dopaminergic Cell Model of Parkinson's Disease](#)

Presenter: Weelic Chong (Oberlin College)

Mentor: Gunnar Kwakye (Oberlin College)

High School Division Award (Tie)

[A Wireless Smartphone-Based System for Diagnosis of Pulmonary Illnesses](#)

Presenter: Maya Varma (Presentation High School Division)

Mentor: Ali Yousuf (Johns Hopkins University)

[Informed or Influenced? Effects of Misconceptions in Media on American Perception of Capital Punishment](#)

Presenter: Kayla Boling (North Carolina School of Science and Mathematics)

Mentor: Sarah Shoemaker (North Carolina School of Science and Mathematics)

2015 Student Research Showcase Award Winning Presentations

Section Awards

About Section Awards

First and second awards are presented to high school, undergraduate and graduate students in each field of research. Winners will receive commemorative certificate and will be featured in Sigma Xi social media and American Scientist Magazine. In addition, Section Award winners are invited to Associate Membership in Sigma Xi.

Biochemistry • Graduate Division

First Place [Pathobiological implication of bile acids in pancreatic cancer development via MUC4 regulation](#)
Presenter: Suhasini Joshi (University of Nebraska Medical Center)
Mentor: Surinder Batra (University of Nebraska Medical Center, Omaha)

Biochemistry • High School Division

First Place [Carbon monoxide protects lungs from hyperoxia-induced arrest of alveolarization in neonatal mice](#)
Presenter: Isabel DiPirro (The Bronx High School Division of Science)
Mentor: Vladimir Shapovalov (The Bronx High School Division of Science)

Second Place [Identification of genetic regions in the yuk operon of Bacillus subtilis that are differentially required for secretion of YukE, a homolog to the virulence factor, ESXA, in Mycobacterium tuberculosis](#)
Presenter: Genevieve Selden (Pine Crest School)
Mentor: Briana Burton (Harvard University)

Cellular & Molecular Biology • High School Division

First Place (Tie) [Characterization of A Novel Groundbreaking Radioresistance Pathway in the Endometrial Cancer Stem Cell Niche: The Interplay of WNT, Cyclooxygenase-2 \(COX-2\), and Hypoxia Inducible Factor-1 \$\alpha\$ \(HIF-1 \$\alpha\$ \)](#)
Presenter: Nelly Lin & KerCheng Chen (The Bronx High School Division of Science)
Mentor: Vladimir Shapovalov (Bronx High School Division of Science)

First Place (Tie) [Lithium-Induced Neuroprotection is Associated with Epigenetic Modification of Specific BDNF Gene Promoter and Altered Expression of Apoptotic-Regulatory Proteins](#)
Presenter: Tushar Dwivedi (Neuqua Valley High School Division)
Mentor: Hui Zhang (University of Illinois at Chicago)



2015 Student Research Showcase Award Winning Presentations

Cellular & Molecular Biology • High School Division (continued)

Second
Place

[Investigation of autophagy in Huntington's disease using a mutant huntingtin knock-in striatal cell line](#)

Presenter: Lauren Houle (Pine Crest School)
Mentor: Jianning Wei (Florida Atlantic University)

Cellular & Molecular Biology • Undergraduate Division

First
Place

[Examining the Role of Human Alpha-Synuclein in Cadmium Homeostasis and Transporter Systems in a Dopaminergic Cell Model of Parkinson's Disease](#)

Presenter: Weelic Chong (Oberlin College)
Mentor: Gunnar Kwakye (Oberlin College)

Second
Place

[How ApoE4 Interacts with Estrogen to Cause Alzheimer's Disease?](#)

Presenter: Nicholas Smith (Eastern Illinois University)
Mentor: Britto Nathan (Eastern Illinois University)

Chemistry • High School Division

First
Place
(Tie)

[Effects of Surface Morphology on Enhanced Photoelectrochemical Properties of Nanocrystals](#)

Presenter: Elizabeth Donoway (Pine Crest School)
Mentor: David Wei (University of Florida)

First
Place
(Tie)

[A Novel Approach for the Rapid Detection of Food-Borne Pathogens Using Cell Imprinted Polymers](#)

Presenter: Anjini Karthik (Saint Francis High School Division)
Mentor: Richard Zare (Stanford University)

Second
Place

[Identification of varying grades of black tea using a voltammetric electronic tongue](#)

Presenter: Malini Basu (Pine Crest School)
Mentor: Jennifer Gordinier (Pine Crest School)

Chemistry • Undergraduate Division

First
Place

[\$\gamma\$ -Cyclodextrin mediated supramolecular control of photochemical reactions](#)

Presenter: Nga Nguyen (University of Nebraska at Kearney) NGA160
Mentor: Mahesh Pattabiraman (Department of Chemistry-University of Nebraska-Kearney)

Second
Place

[Execution of Chloride ion atomic Ligand Exchange on biocompatible SnS quantum dots with applications in photovoltaics](#)

Presenter: Rishi Sundaresan (North Carolina School of Science and Mathematics)
Mentor: Myra Halpin (North Carolina School of Science and Math)

2015 Student Research Showcase Award Winning Presentations

Ecology & Evolutionary Biology • Graduate Division

First Place (Tie) [The impacts of two ubiquitous invaders on an endemic island bat](#)
Presenter: Jessica Nicole Welch (University of Tennessee)
Mentor: Dan Simberloff (University of Tennessee, Knoxville)

First Place (Tie) [The Role of Plant Dispersal on Ecosystem Function](#)
Presenter: Luka Negoita (Syracuse University)
Mentor: Jason Fridley (Syracuse University)

Ecology & Evolutionary Biology • High School Division

First Place [Spices as Fly Deterrents](#)
Presenter: Morgan Nelson (Dublin Coffman High School Division)
Mentor: Courtney DeVries (Ohio State University)

Engineering • Graduate

First Place [Assessment of Contributing Factors to the Reduction of Diarrhea in Rural Communities of Para, Brazil](#)
Presenter: Lee Voth-Gaeddert (Missouri University of Science and Technology)
Mentor: Daniel Oerther (Missouri University of Science and Technology)

Engineering • High School Division

First Place [A Wireless Smartphone-Based System for Diagnosis of Pulmonary Illnesses](#)
Presenter: Maya Varma (Presentation High School Division)
Mentor: Ali Yousuf (Johns Hopkins University)

Second Place [A Novel Microfluidic Device that Detects Iodine Concentrations from Saliva](#)
Presenter: Sophia Hu, Amanda Lin Li & Ryan R. Chen (North Carolina School of Science and Mathematics)
Mentor: Myra Halpin (North Carolina School of Science and Mathematics)

Engineering • Undergraduate Division

First Place [Load Capacity and Thermal Efficiency Optimization of a Research Data Center Using Computational Modeling](#)
Presenter: Joseph Russell Heinlen Schaadt (Villanova University)
Mentor: Kamran Fouladi (Villanova University)

Environmental Sciences • Graduate Division

First Place (Tie) [Bird Strikes and Trash Management](#)
Presenter: Harsh Wardhan Aggarwal (Purdue University)
Mentor: Steven Landry (Purdue University)

First Place (Tie) [Mangiferin as a Biomarker for Mango Anthracnose Resistance](#)
Presenter: Herma Pierre (Florida International University)
Mentor: Krishnaswamy Jayachandran (Florida International University)

2015 Student Research Showcase Award Winning Presentations

Environmental Sciences • High School Division

- First Place** [Neem: A Panacea for Insect Control](#)
Presenter: Nirupa Gadi (Charles M. Russell High School Division)
Mentor: G.V.P. Reddy (Montana State University)
- Second Place** [Tracking Deforestation and Promoting Sustainable Development in the Brazilian Amazon](#)
Presenter: Sheila Cochrane (Brookings High School Division)
Mentor: Izaya Numata (South Dakota State University)

Geo-Sciences • Graduate

- First Place** [Hand-held Portable X-ray Fluorescence Spectrometry \(HHpXRF or pXRF\) for Sourcing and Distinguishing Chert](#)
Presenter: Kia Catina Atsales (University of Minnesota, Twin Cities)
Mentor: Gilbert Tostevin (University of Minnesota, Twin Cities)

Geo-Sciences • High School Division

- First Place** [The relationship between ridge migration and oceanic core complexes: Implications for the Marine Magnetic Anomaly Source Layer](#)
Presenter: Daniel Thach (The Bronx High School Division of Science)
Mentor: Heather Sloan (Lehman College)

Human Behavioral & Social Sciences • High School Division

- First Place** [Informed or Influenced? Effects of Misconceptions in Media on American Perception of Capital Punishment](#)
Presenter: Kayla Boling (North Carolina School of Science and Mathematics)
Mentor: Sarah Shoemaker (North Carolina School of Science and Mathematics)
- Second Place (Tie)** [Quality of Life in Overweight Versus Obese Children](#)
Presenter: Julianna Lee Marino (The Bronx High School Division of Science)
Mentor: Zach Lynn (Bronx High School Division of Science)
- Second Place (Tie)** [The Size and Spacing Limits of Word Recognition](#)
Presenter: Alexander Pan (The Bronx High School Division of Science)
Mentor: Robert Muratore (The Bronx High School Division of Science)

Human Behavioral & Social Sciences • Undergraduate Division

- First Place** [A Proposed EEG Study of Anabolic Androgenic Steroid-Treated HIV Patients to Examine Dose Timing-Related Effects on Impulsivity](#)
Presenter: Bryan Scott Nelson & Andre Joseph Nakkab (New York University)
Mentor: Pascal Wallisch (New York University)



2015 Student Research Showcase Award Winning Presentations

Math & Computer Sciences • High School Division

**First
Place**

[On Personalized Prediction Models of Human Motion Recognition Using Smart Phone Data](#)

Presenter: David Yang & Ariel Skye Levy (Academy for the Advancement of Science and Technology)

Mentor: Ansaf Salieb-Aouissi (Columbia University)

Physics & Astronomy • High School Division

**First
Place**

[Trapped Field Magnets using Thin Film Superconductor Tapes](#)

Presenter: Kavita Selva (Clear Lake High School Division)

Mentor: Brenda Pinchbeck (Clear Lake High School Division)

**Second
Place**

[A Hybrid Photometric and Spectral Algorithm for Efficient Detection of Gravitationally Lensed Quasars](#)

Presenter: Pranav Sivakumar (Illinois Mathematics and Science Academy)

Mentor: Sivakumar Muthuswamy (Motorola Solutions, Inc.)

Physiology & Immunology • High School Division

**First
Place**

[Examining the role of IL-2 receptor mediated signalling in Alopecia Areata](#)

Presenter: Yi Chen (The Bronx High School Division of Science)

Mentor: Spandan Shah (Columbia University Medical Center)

**Second
Place
(Tie)**

[Circadian activity patterns of inbred and outbred mice strains](#)

Presenter: Mariel Ferragamo (St. Peter High School Division)

Mentor: Janine Wotton (Gustavus Adolphus College)

**Second
Place
(Tie)**

[Novel Method to Localize the Language Region using Electrocorticography \(ECoG\) during Natural Conversation](#)

Presenter: Rashmi Thimmapuram (Illinois Mathematics and Science Academy)

Mentor: Leo Towle (University of Chicago)

Physiology & Immunology • Undergraduate Division

**First
Place**

[The Affects of Stress on Learning and Memory in Bumblebees](#)

Presenter: Amanda Scampini (University of Nevada, Reno)

Mentor: Anne Leonard (University of Nevada, Reno)