

Neurons in the Hippocampus, Elizabeth Bauer

# **SUMMER RESEARCH INSTITUTE 2018 POSTER SESSION**

**August 1, 2018  
Diana Center: Event Oval and Lower Level 1**

[barnard.edu/summer-research-institute](http://barnard.edu/summer-research-institute)



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**Within the Barnard Community, the following deserve recognition for their important contributions to the Summer Research Institute:**

Office of the President  
Office of the Provost  
Office of the Dean of Studies  
Beyond Barnard  
Empirical Reasoning Center

Offices of Alumnae Relations and Development  
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Eileen Di Benedetto  
Nanette Dilauro

Becky Friedkin  
Natalie Friedman  
Amanda Gates-Elston  
John Glendinning  
Mark Godwin  
Robert Goldberg  
Avis Hinkson  
Christina Johnson  
Goldi Juer  
Aaron Kinard  
Matt Kingston  
Evelyn Leong  
Kate Martinez

Koleen McCrink  
Reshmi Mukherjee  
Marco Medina  
Isabella Mungioli  
Haifa Rahman  
Leslie Raucher  
Denis Riker  
Alisa Rod  
Christian Rojas  
Briana Roman  
Bruce Ross  
Jon Snow  
Martin Stute

Elizabeth Tam  
Laura Tierney  
Jackie Tucciarone  
Pamela Tuffley  
Molree Williams-Lendor  
Dorothy Weaver  
David Weiman  
Hope Williams  
Eric Wong  
Nikki Youngblood-Giles



## FROM THE PROVOST

Dear Students and SRI Faculty Colleagues,

I am very pleased to participate in the fifth Poster Session of the Summer Research Institute. With more than 160 Barnard students taking part, this is the largest SRI Poster Session in the Summer Research Institute's history.

We have much to be proud of, and I am very impressed with what you have accomplished.

To the students, your dedication to serious scientific work in collaboration with your research advisors and lab groups is obvious from what we are able to witness today. Congratulations on the methods advanced and any new or potential results, and I hope and trust that you will build on your summer research project as you continue your scientific journeys.

To the faculty mentors, I offer my gratitude to the nearly 100 of you at Barnard and in New York City (and in select cases, beyond). We rely on your close supervision and mentorship of our Summer Research Institute students. Your invaluable support of our students in your labs ensures that the SRI stands out as one of Barnard's most distinctive intellectual experiences, and as a model for how to engage students in deep scientific research.

Inaugurated in 2014 with the support of our initial Directors – Professors John Glendinning and Christian Rojas – and funded through a combination of generous support from foundations and individuals, SRI represents an annual institutional commitment of more than \$1 million to original scientific faculty-student research. The SRI is structured in such a way as to provide students the opportunity for deep disciplinary research and at the same time, exposure to exciting interdisciplinary and cross-disciplinary connections. Roughly one-third of Barnard students now major in a science discipline. The SRI encourages our students to pursue meaningful scientific research, adding to their confidence and success in pursuing advanced scientific research and science-related careers.

In support of the diverse ambitions of our students, we have been excited to launch Beyond Barnard, an initiative that supports Barnard students and alumnae as they define, pursue, and achieve success in their chosen career fields. We are grateful to Beyond Barnard for providing organizational support for the SRI this summer, and look forward to broadening the strategic relationship between Beyond Barnard and the SRI in the years to come.

Today's poster session is the celebration of the hard work and dedication to scientific research of each of you this summer. Congratulations on what you have achieved – as we look forward to much more ahead.

Sincerely,



Linda Bell  
Provost and Dean of Faculty  
Claire Tow Professor of Economics  
Barnard College



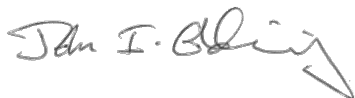
## *FROM THE FACULTY DIRECTORS*

Dear students, faculty, research mentors, and guests,

It has been a great pleasure to direct the Summer Research Institute this year. We would like to thank the Barnard President and Provost and many foundations, corporations, institutions, and individuals that allowed us to expand the program to an unprecedented level. In the end, we were able to support every student in the sciences who applied to the SRI. This program would also not have been possible without the tireless commitment of research mentors from Barnard, Columbia, and beyond.

We both have SRI students working in our lab and we know what it takes to pull off a successful summer research project, considering that science is inherently unpredictable and that almost nothing works exactly as planned. We also very much appreciated the help we received from the departmental SRI representatives (Peter Balsam, Andrew Crowther, Koleen McCrink, Reshmi Mukherjee and Jon Snow), the Barnard faculty at large, the library and the Empirical Reasoning Center. We also want to thank the extraordinary staff of the newly-formed Beyond Barnard office, including A-J Aronstein and Briana Roman, who did almost all the day-to-day work ensuring the program ran as smoothly as possible. Last, but not least, we would like to thank the outstanding Barnard students for their enthusiasm and resourcefulness.

Sincerely,



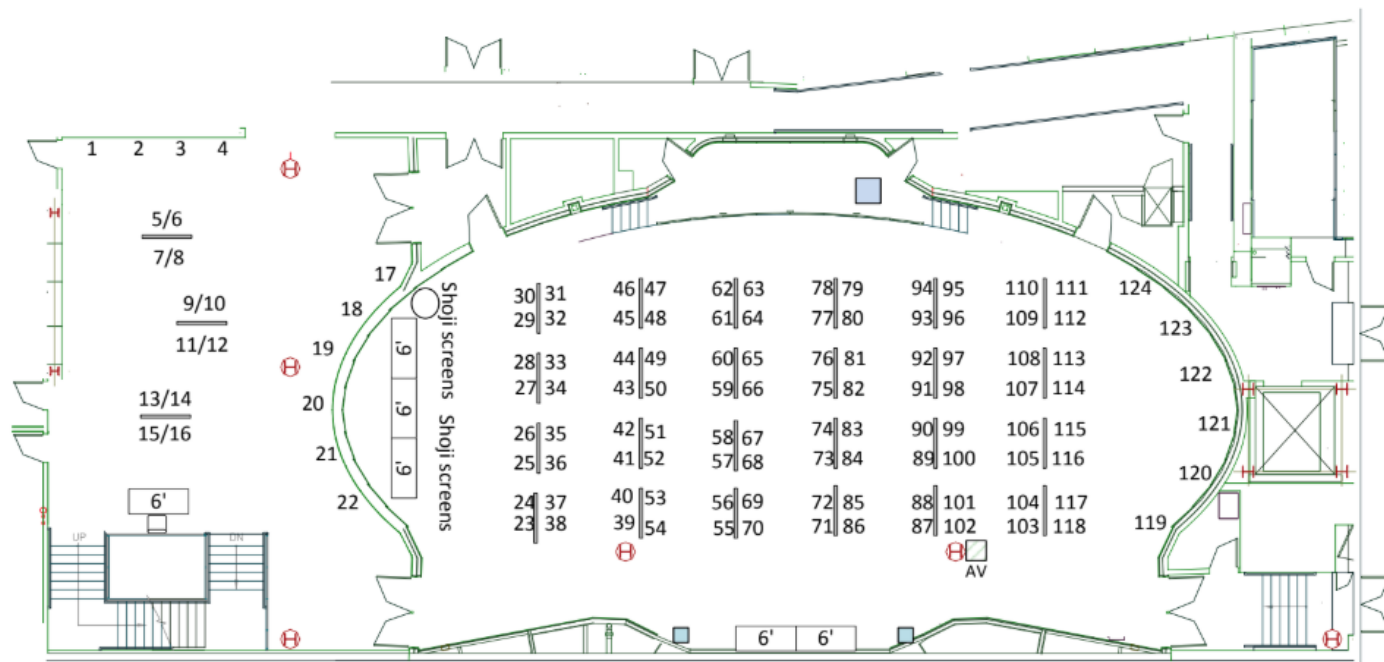
John Glendinning  
Co-Director, Summer Research Institute  
Ann Whitney Olin Professor of Biology



Martin Stute  
Co-Director, Summer Research Institute  
Professor of Environmental Science

## THE DIANA CENTER: EVENT OVAL & LOWER LEVEL 1

Posters are arranged by student department or program, then alphabetically by last name of the first author listed on the poster. Please see below for the locations of the poster boards in the Diana Oval.



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# DEPARTMENT OF PSYCHOLOGY

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**Name(s):** Helen Branyan; Elisheva Fridman; Jarielle Isaac; Tamar Lieberman; Ariel Rissman  
**Department:** Psychology  
**Poster Title:** *Spatial Association Rigidity in Toddlers and Preschoolers*  
**Mentor(s):** Koleen McCrink, Department of Psychology, Barnard College

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**Name(s):** Elisheva Fridman; Ariel Rissman; Tamar Liberman; Jarielle Isaac; Helen Branyan  
**Department:** Psychology  
**Poster Title:** *Shifting Asymmetrical Biases in Infants, Toddlers, and Preschoolers*  
**Mentor(s):** Koleen McCrink, Department of Psychology, Barnard College

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**Name(s):** Sara Hameed  
**Department:** Psychology  
**Poster Title:** *The Link Between Childhood Trauma and Depression: Rumination as a Potential Mediator*  
**Mentor(s):** Mora Grehl, Mood and Anxiety Disorders Program, Icahn School of Medicine, Mt. Sinai

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**Name(s):** Jarielle Isaac  
**Department:** Psychology  
**Poster Title:** *Spatial Rigidity in Toddlers and Pre-schoolers*  
**Mentor(s):** Koleen McCrink, Department of Psychology, Barnard College

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**Name(s):** Nechama Kaiser; Nadia Shwingle  
**Department:** Psychology  
**Poster Title:** *iBlindness: Restoring Situational Awareness to Pedestrians Using Smartphones*  
**Mentor(s):** Joshua New, Psychology Department, Barnard College

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**Name(s):** Carly Lenniger  
**Department:** Psychology  
**Poster Title:** *Baby Brain? Ethologically relevant memory functioning during pregnancy*  
**Mentor(s):** Bridget Callaghan and Nim Tottenham, Department of Psychology, Columbia University; ; Catherine Monk, Department of Psychiatry and Department of Obstetrics & Gynecology, Columbia University Medical Center

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**Name(s):** Mariah Marrero  
**Department:** Psychology  
**Poster Title:** *Perceptual Resolution of Speech Sounds: Can an Arbitrary Acoustic Pattern Disrupt Organization?*  
**Mentor(s):** Robert Remez, Department of Psychology, Barnard College

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**Name(s):** Gabriele Valle  
**Department:** Psychology  
**Poster Title:** *Shared properties of anticipation for drugs and treats*  
**Mentor(s):** Rae Silver, Department of Psychology, Barnard College

# DEPARTMENT OF PHYSICS & ASTRONOMY

- P 9  
**Name(s):** Emily Calamari  
**Department:** Physics and Astronomy  
**Poster Title:** *Gamma Ray Burst and Gravitational Wave Correlation*  
**Mentor(s):** Zsuzsanna Marka, Department of Astronomy, Columbia University
- P 10  
**Name(s):** Lin Feng Collins  
**Department:** Physics and Astronomy  
**Poster Title:** *Intergalactic Dust Scattering*  
**Mentor(s):** Frits Paerels, Department of Astronomy, Columbia University
- P 11  
**Name(s):** Michelle Friedman  
**Department:** Physics and Astronomy  
**Poster Title:** *Humidity Responsive Biological Materials*  
**Mentor(s):** Yocheved Ungar, Department of Physics, Columbia University
- P 12  
**Name(s):** Yasmine Kaya  
**Department:** Physics and Astronomy  
**Poster Title:** *Machine Learning in Cancer: Bayesian Multiple Hypothesis Testing*  
**Mentor(s):** Chris Wiggins, Data Science Institute, Columbia University; Wesley Tansey, Data Science Institute, Columbia University and The Irving Center for Cancer Research
- P 13  
**Name(s):** Camilla Lyczko  
**Department:** Physics and Astronomy  
**Poster Title:** *E+A Galaxies in SDSS-IV and MaNGA*  
**Mentor(s):** Charles Liu, Department of Engineering Science and Physics, College of Staten Island CUNY and American Museum of Natural History
- P 14  
**Name(s):** Leslie Ortiz  
**Department:** Physics and Astronomy  
**Poster Title:** *Furthering Discoveries of 2-Dimensional Semiconductors Through Atomically Thin Circuits*  
**Mentor(s):** Jamie Teherani, Department of Electrical Engineering, Columbia University
- P 15  
**Name(s):** Kayla Smith  
**Department:** Physics and Astronomy  
**Poster Title:** *Data Visualization for Index Insurance and Risk Management*  
**Mentor(s):** Daniel Edward Osgood, Financial Instruments Sector Team, International Research Institute for Climate and Society
- P 16  
**Name(s):** Margaret Smith  
**Department:** Physics and Astronomy  
**Poster Title:** *"Inside Out" Kilonova Model*  
**Mentor(s):** Brian Metzger, Department of Physics, Columbia University
- P 17  
**Name(s):** Teresa Tseng; Aliza Isaacs  
**Department:** Physics and Astronomy  
**Poster Title:** *Alexa, How Secure Are You? Reverse Engineering and Protocol Analysis of the Amazon Echo*  
**Mentor(s):** Henning Schulzrinne and Jan Janak, Department of Computer Science, Columbia University

# DEPARTMENT OF CHEMISTRY

P 18

**Name(s):** Erika Amemiya  
**Department:** Chemistry  
**Poster Title:** *Reactivity of a Terminal Zinc Hydride Complex, [ $\kappa^3$ -Bptm]ZnH*  
**Mentor(s):** Gerard Parkin and Daniel Shlian, Department of Chemistry, Columbia University

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**Name(s):** Anoosha Banerjee; Kristen Song; Emily Latif  
**Department:** Chemistry  
**Poster Title:** *Synthesis of 1,2-Cis 2-Amino Sugars via Amidoglycosylation*  
**Mentor(s):** Christian Rojas, Department of Chemistry, Barnard College

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**Name(s):** Rafaela Brinn  
**Department:** Chemistry  
**Poster Title:** *Graphene Functionalization Dynamics in the Gas-Phase*  
**Mentor(s):** Andrew Crowther, Department of Chemistry, Barnard College

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**Name(s):** Vanessa Marie Chirino  
**Department:** Chemistry  
**Poster Title:** *Engineering the Active Site Microenvironment of a Thermostable Alcohol Dehydrogenase Using Supercharged GFP As a Means to Modulate Kinetic Activity*  
**Mentor(s):** Scott Banta, Department of Chemical Engineering, Columbia University

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**Name(s):** Erica Christensen; Genevieve Nemeth; Diagne Maimouna; Jennifer Niola  
**Department:** Chemistry  
**Poster Title:** *Selenium Redox Chemistry: From Surface Reactivity to Biological Applications*  
**Mentor(s):** Marisa Buzzeo, Department of Chemistry, Barnard College

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**Name(s):** Tasneem Elkoush  
**Department:** Chemistry  
**Poster Title:** *Mechanistic Studies of Alkene Aziridination with a Dinuclear Silver Catalyst*  
**Mentor(s):** Michael G. Campbell, Department of Chemistry, Barnard College

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**Name(s):** Rahma Elsiey; Carla Hachicho; Laura Arbelaez; Mehrose Ahmad  
**Department:** Chemistry  
**Poster Title:** *Does Metallothionein-3 Affect the Polymerization Kinetics of Actin?*  
**Mentor(s):** Rachel Austin, Department of Chemistry, Barnard College

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**Name(s):** Allison Forsberg; Juliet Lee; Maya Jodidio  
**Department:** Chemistry  
**Poster Title:** *An Exploration of the Structure and Function Relationship in AlkB, an Alkane Monooxygenase*  
**Mentor(s):** Rachel Austin, Department of Chemistry, Barnard College

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**Name(s):** Katharine K. Glaser; Sanjana K. Rana  
**Department:** Chemistry  
**Poster Title:** *Efforts Towards the Synthesis of Diarylvinyldiazirines*  
**Mentor(s):** Dina Merrer, Department of Chemistry, Barnard College

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**Name(s):** Alaina Hartnett  
**Department:** Chemistry  
**Poster Title:** *Raman Spectroscopic Studies of the Vibrational Properties of Nanostructures*  
**Mentor(s):** Andrew Crowther, Department of Chemistry, Barnard College

- P 28  
**Name(s):** Abigail Kempf  
**Department:** Chemistry  
**Poster Title:** *Microwave-Assisted Synthesis of Lycoperdic Acid*  
**Mentor(s):** Richard Denton, Department of Chemistry, Barnard College
- P 29  
**Name(s):** Amanda Klestzick; Sarah Lubin  
**Department:** Chemistry  
**Poster Title:** *Quantification of Metallothionein-3 Protein Expression in Response to Excess Metals and Hypoxia*  
**Mentor(s):** Mary Sever, Department of Chemistry, Barnard College
- P 30  
**Name(s):** Emily Miura-Stempel  
**Department:** Chemistry  
**Poster Title:** *Dinuclear Rhodium Complexes for Chemistry with Oxygen*  
**Mentor(s):** Michael Campbell, Department of Chemistry, Barnard College
- P 31  
**Name(s):** Angela Montero  
**Department:** Chemistry  
**Poster Title:** *Identifying the effects of Wnt signaling activation and TGFB treatment on tendon cell proliferation and gene expression*  
**Mentor(s):** Alice Huang, Orthopaedic Research Laboratories, Mount Sinai; Mary Sever, Department of Chemistry, Barnard College
- P 32  
**Name(s):** Aisha Oza  
**Department:** Chemistry  
**Poster Title:** *Raman Spectroscopic Analysis of the Structural Properties of Alloyed Metal Chalcogenide Nanoparticles*  
**Mentor(s):** Andrew Crowther, Department of Chemistry, Barnard College
- P 33  
**Name(s):** Joanly Sanchez; Clarety Kaseke  
**Department:** Chemistry  
**Poster Title:** *Metal and Hypoxia Mimetic Induction of Metallothionein-3*  
**Mentor(s):** Mary Sever, Department of Chemistry, Barnard College
- P 34  
**Name(s):** Janine Sempel  
**Department:** Chemistry  
**Poster Title:** *Effect of Water on the Hydrogen Efficient Direct Deoxygenation Mechanism of Phenol over Ru/TiO<sub>2</sub>*  
**Mentor(s):** Rachel Austin, Department of Chemistry, Barnard College
- P 35  
**Name(s):** Edith Serrano  
**Department:** Chemistry  
**Poster Title:** *Role of Mitochondria-Associated Degradation (MAD) in Mitochondrial Quality under the Condition of Chronic Low-Level Oxidative Stress*  
**Mentor(s):** Liza A. Pon, Department of Pathology and Cell Biology, Columbia University Irving Medical Center
- P 36  
**Name(s):** Nicole Townsend  
**Department:** Chemistry  
**Poster Title:** *TAN-1612 Isolation from A. niger and S. cerevisiae*  
**Mentor(s):** Pedro Baldera-Aguayo, Department of Chemistry, Columbia University

# DEPARTMENT OF BIOLOGY

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**Name(s):** Dunay Bach  
**Department:** Biology  
**Poster Title:** *Heat Shock Response Induced Apoptosis and Gut Regeneration in the Honey Bee*  
**Mentor(s):** Jonathan Snow, Department of Biology, Barnard College
- P 38  
**Name(s):** Saani Borge  
**Department:** Biology  
**Poster Title:** *Human Inferential Learning of Categories in a Serial Order*  
**Mentor(s):** Vincent Ferrera, Columbia University Irving Medical Center
- P 39  
**Name(s):** Anne Claire Burghard  
**Department:** Biology  
**Poster Title:** *Biomarkers of Androgen Excess and Gut Dysbiosis in Children with Premature Adrenarche*  
**Mentor(s):** Brittany Wise-Oringer, Rachel H. Tao, Sharon E. Oberfield, Division of Pediatric Endocrinology Diabetes and Metabolism, Columbia University Irving Medical Center, Morgan Stanley Children's Hospital of New York Presbyterian
- P 40  
**Name(s):** Stephanie Calluori  
**Department:** Biology  
**Poster Title:** *Investigating the Role of Zip14 in Cachexia*  
**Mentor(s):** Swarnali Acharyya and Anup Biswas, Institute for Cancer Genetics, Columbia University Irving Medical Center
- P 41  
**Name(s):** Vanessa Chin  
**Department:** Biology  
**Poster Title:** *Understanding brain metastasis in therapy-resistant non-small cell lung cancer*  
**Mentor(s):** Swarnali Acharyya and Anup Biswas, Institute for Cancer Genetics, Columbia University Irving Medical Center
- P 42  
**Name(s):** Nushrat Chowdhury; Abigail Gutierrez  
**Department:** Biology  
**Poster Title:** *Testing the effects of eye color mutations on lifetime fitness in Drosophila melanogaster*  
**Mentor(s):** Alison Pischedda, Department of Biology, Barnard College
- P 43  
**Name(s):** Elana Coates  
**Department:** Biology  
**Poster Title:** *Taste loss: another side effect of chemotherapy*  
**Mentor(s):** John I. Glendinning, Department of Biology, Barnard College
- P 44  
**Name(s):** Anastasija Cupic  
**Department:** Biology  
**Poster Title:** *Towards understanding the role of LGP2 in the regulation of antiviral innate immune response*  
**Mentor(s):** Lisa Miorin, Department of Microbiology, Icahn School of Medicine, Mt. Sinai
- P 45  
**Name(s):** Caroline Dolt  
**Department:** Biology  
**Poster Title:** *Analyzing Phylogenetic Diversity in University Greenhouses*  
**Mentor(s):** Hilary Callahan, Department of Biology, Barnard College
- P 46  
**Name(s):** Tasneem Ebrahim  
**Department:** Biology  
**Poster Title:** *Effect of Nutrient Level on Heterochromatin Formation*  
**Mentor(s):** Songtao Jia, Department of Biological Sciences, Columbia University

- P 47  
**Name(s):** Taryn Gates  
**Department:** Biology  
**Poster Title:** *Fabrics and Fashion: Fabricating the Future of Textile Conservation through Noninvasive Techniques*  
**Mentor(s):** Adriana Rizzo, The Metropolitan Museum of Art
- P 48  
**Name(s):** Abigail I. Gutierrez  
**Department:** Biology  
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**Mentor(s):** Testing the effects of the scarlet (st) and brown (bw) mutations on male and female fitness in *Drosophila*
- P 49  
**Name(s):** Antonina Kalkus  
**Department:** Biology  
**Poster Title:** *Simulating the Evolution of the Angiosperm psbA gene*  
**Mentor(s):** Brian Morton, Department of Biology, Barnard College
- P 50  
**Name(s):** Francesc Kamara  
**Department:** Biology  
**Poster Title:** *Identifying Genes Involved in Modulating Gentle Touch Sensitivity by Knock-down of Overexpressed Touch Receptor Neuron Genes in *Caenorhabditis elegans*.*  
**Mentor(s):** Terese Lawry and Martin Chalfie, Department of Biological Sciences, Columbia University
- P 51  
**Name(s):** Stacy Kanellopoulos  
**Department:** Biology  
**Poster Title:** *Benefits of longer matings for male *Drosophila melanogaster**  
**Mentor(s):** Alison Pischedda, Department of Biology, Barnard College
- P 52  
**Name(s):** Iasha Khan  
**Department:** Biology  
**Poster Title:** *The Effect of CD200-CD200R Pathway on Tumor Metastasis*  
**Mentor(s):** David Owens, Department of Pathology and Cell Biology, Columbia University Irving Medical Center
- P 53  
**Name(s):** Helen Kogan  
**Department:** Biology  
**Poster Title:** *Precursor development of follicle stem cells in the *Drosophila* ovary*  
**Mentor(s):** Daniel Kalderon and Amy Reilein, Department of Biological Sciences, Columbia University
- P 54  
**Name(s):** Elizabeth Ladyzhets  
**Department:** Biology  
**Poster Title:** *Survey of deciduous tree construction costs at Black Rock Forest*  
**Mentor(s):** Kevin Griffin, Department of Earth and Environmental Sciences, Columbia University
- P 55  
**Name(s):** Lillian Lawrence  
**Department:** Biology  
**Poster Title:** *Understanding force generation at the T cell-APC synapse: an analysis of kinetically relevant protein localization during T-cell activation*  
**Mentor(s):** Lance Kam, Columbia Department of Biomedical Engineering; Morgan Huse, Immunology, Memorial Sloan Kettering Cancer Center
- P 56  
**Name(s):** Jiani Liang  
**Department:** Biology  
**Poster Title:** *Interrogating Neuralized1b Function in Beta Cells*  
**Mentor(s):** Utpal Pajvani, Institute of Human Nutrition, Columbia University Irving Medical Center
- P 57  
**Name(s):** Shannon MacLeod  
**Department:** Biology  
**Poster Title:** *Characterizing the Heat Shock Response in *Megachile rotundata**  
**Mentor(s):** Jonathan Snow, Department of Biology, Barnard College

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**Name(s):** Nora K. McNamara-Bordewick  
**Department:** Biology  
**Poster Title:** *Use of Flow Cytometry to Characterize Nosema ceranae Developmental Stages*  
**Mentor(s):** Jonathan Snow, Department of Biology, Barnard College
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**Name(s):** Catherine Miller  
**Department:** Biology  
**Poster Title:** *Exploring the Role of Immune Cells in the Production of Amphiregulin During Influenza Infection*  
**Mentor(s):** Nicholas Arpaia, Department of Microbiology and Immunology, Columbia University
- P 60  
**Name(s):** Kira Mitchel; Kyra Schindler; Tova Finkelstein  
**Department:** Biology  
**Poster Title:** *Comparison of Skeletal Patterning Following Conditional Deletion of Hoxa5 in Somites and Lateral Plate Mesoderm*  
**Mentor(s):** Jennifer Mansfield, Department of Biology, Barnard College
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**Name(s):** Nicki Mohammadi  
**Department:** Biology  
**Poster Title:** *Mutations in a homeobox transcription factor unc-42 and its target cell adhesion molecules affect locomotion in C. elegans*  
**Mentor(s):** Oliver Hobert and Emily Bergoff, Department of Biological Sciences, Columbia University
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**Name(s):** Hanna Scholze  
**Department:** Biology  
**Poster Title:** *Mechanisms of Chemotherapy Induced Muscle Wasting*  
**Mentor(s):** Swarnali Acharyya and Anup Biswas, Institute for Cancer Genetics, Columbia University Irving Medical Center
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**Name(s):** Eva Schwartz  
**Department:** Biology  
**Poster Title:** *The Role of BARD1 in Tumor Suppression*  
**Mentor(s):** Richard Baer, Institute for Cancer Genetics; Jonathan Snow, Department of Biology, Barnard College
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**Name(s):** Binita Shah  
**Department:** Biology  
**Poster Title:** *Structures of Intermediates in Bacterial Translation*  
**Mentor(s):** Ziao Fu, Sandip Kaledhonkar, Joachim Frank, Department of Biochemistry and Molecular Biophysics, Columbia University Irving Medical Center
- P 65  
**Name(s):** Samantha Shih  
**Department:** Biology  
**Poster Title:** *Small Heat Shock Proteins Upregulated by Diverse Cellular Stressors in Apis mellifera*  
**Mentor(s):** Jonathan Snow, Department of Biology, Barnard College
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**Name(s):** Lauren Smith  
**Department:** Biology  
**Poster Title:** *Effects of gestational and postnatal hyperleptinemia on "set point" body weight in mouse model*  
**Mentor(s):** Alicja Skowronski, Charles Leduc, Rudolph Leibel, the Institute of Human Nutrition, Columbia University Irving Medical Center
- P 67  
**Name(s):** MaryElena Sumerau  
**Department:** Biology  
**Poster Title:** *Evaluating the efficacy of antimicrobial-coated catheters*  
**Mentor(s):** Shanta Modak, Department of Surgery, Columbia University Irving Medical Center
- P 68  
**Name(s):** Jerica Tan  
**Department:** Biology  
**Poster Title:** *In Vitro Generation of Human Hypothalamic AGRP Neurons*  
**Mentor(s):** Claudia Doege, Department of Pathology and Cell Biology, Columbia University Irving Medical Center

# NEUROSCIENCE AND BEHAVIOR

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**Name(s):** Aliza Amsellem  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Mapping dopaminergic neurons capable of glutamate cotransmission in the VTA using the INTRSECT system*  
**Mentor(s):** Susana Mingote and Stephen Rayport, Department of Molecular Therapeutics, New York State Psychiatric Institute

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**Name(s):** Meena Ardebili; Eliana Kalman  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Sensory Discrimination in a Paired Association Task: The Barrel Cortex's Role in Delay Conditioning in Mice*  
**Mentor(s):** Rebecca Rabinovitch and Randy Bruno, Zuckerman Mind Brain Behavior Institute, Columbia University

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**Name(s):** Sidney Benich  
**Department:** Neuroscience and Behavior  
**Poster Title:** *The effect of MD Inhibition on MD-PFC and BLA-PFC circuitry*  
**Mentor(s):** Laura Benoit, Department of Neuroscience, Columbia University

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**Name(s):** Emily Birnbaum  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Characterization of TBK1 Mutation on Disease Progression in a Mouse Model of ALS*  
**Mentor(s):** Tom Maniatis, Zuckerman Mind Brain Behavior Institute, Columbia University

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**Name(s):** Diana Daeun Bok  
**Department:** Neuroscience and Behavior  
**Poster Title:** *NK1R antagonists play critical role in the complex pathophysiology of pain by selectively inhibiting endosomal signaling and sustaining neuronal excitation*  
**Mentor(s):** Nigel W. Bunnett, Department of Surgery, Columbia University Vagelos College of Physicians and Surgeons

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**Name(s):** Yvette Carbajal  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Regional specificity of SCN AVP cells governs output pathways, for condensation purposes*  
**Mentor(s):** Rae Silver and Joe Le Sauter, Department of Psychology, Barnard College

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**Name(s):** Gabriela Castro  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Is Interpersonal Sensitivity Associated with Social Rejection Response in Marijuana Users?*  
**Mentor(s):** Suzette M. Evans, New York State Psychiatric Institute and Columbia University Irving Medical Center

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**Name(s):** Nahian Chowdhury  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Garbled Listening: How Psychosis Affects Neural Connectivity and Activation in the STS*  
**Mentor(s):** Juan Sanchez and Gaurav Patel, Department of Experimental Therapeutics, New York State Psychiatric Institute

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**Name(s):** Shiloh Cleveland  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Differences in Sensation Seeking Impulsivity and Behavioral Inhibition in Cocaine Users with Familial History of Substance Dependency*  
**Mentor(s):** Richard W. Foltin, Division on Substance Abuse, New York State Psychiatric Institute and Department of Psychiatry, Columbia University Irving Medical Center

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**Name(s):** Joralysa Conley  
**Department:** Neuroscience and Behavior  
**Poster Title:** *The Effects of Insular Cortex Activity in Conditioned Inhibition*  
**Mentor(s):** Peter Balsam, Department of Psychology, Barnard College



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**Name(s):** Biiftu Duresso  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Localization of Hyperphosphorylated Tau Conformations in Tauopathy Model*  
**Mentor(s):** Lenzie Ford, Zuckerman Mind Brain Behavior Institute, Columbia University
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**Name(s):** Shoshana Edelman  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Encoding of Effort by Dopamine Activity in Ventral Striatum*  
**Mentor(s):** Eleanor H. Simpson, Department of Psychiatry, Columbia University Vagelos College of Physicians and Surgeons and New York State Psychiatric Institute; Abigail Kalmbach, Department of Psychology, Barnard College
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**Name(s):** Sari Esses  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Mental Summation of Time Intervals*  
**Mentor(s):** Peter Balsam, Department of Psychology, Barnard College
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**Name(s):** Molly Ganley  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Examining the Functional Connectivity of Prefrontal Cortical Inputs in Schizophrenic Patients*  
**Mentor(s):** Sarah Canetta, Department of Molecular Therapeutics, New York State Psychiatric Institute
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**Name(s):** Carla Hanna; Tamanna Yeasmin  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Role of serotonergic inputs in CA1 on memory and emotion-based behavior*  
**Mentor(s):** Mark Ansorge and Ashlea Morgan, New York State Psychiatric Institute
- P 84  
**Name(s):** Charli Ann Hertz; Jessica Ivanov; Alyson Denis  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Behavioral and Metabolic Responses to Carbohydrates*  
**Mentor(s):** John I. Glendinning, Department of Biology, Barnard College
- P 85  
**Name(s):** Jessica Ivanov; Alyson Dennis; Charli Ann Hertz  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Is taste induced insulin release subject to conditioning?*  
**Mentor(s):** John I. Glendinning, Department of Biology, Barnard College
- P 86  
**Name(s):** Keerthana Jayaseelan  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Anxiety-like Behavior Correlates with Cognitive Decline in Female Alzheimer's Disease Mice*  
**Mentor(s):** Holly Hunsberger, Department of Psychiatry, Columbia University; Christine Ann Denny, Department Integrative Neuroscience, Columbia University Medical Center
- P 87  
**Name(s):** Minna Jayaswal; Hana Mahallati  
**Department:** Neuroscience and Behavior  
**Poster Title:** *In-Utero Exposure to a Diabetic Environment on Autonomic Nervous System Functioning*  
**Mentor(s):** Bill Fifer and Lauren Shuffrey, New York State Psychiatric Institute
- P 88  
**Name(s):** Sarah Jinich; Stacey Cohen; Rachel Nordlicht  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Contextual fear conditioning activates extended amygdala circuits differently in female and male rats*  
**Mentor(s):** Elizabeth Bauer, Department of Biology, Barnard College
- P 89  
**Name(s):** Paula Jon  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Locomotive Function of Single 5-HT Cells in the Drosophila Ventral Nerve Cord*  
**Mentor(s):** Clare Howard and Richard Mann, Department of Systems Biology, Columbia University

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**Name(s):** Maham Karatela  
**Department:** Neuroscience and Behavior  
**Poster Title:** *The relationship between metrics of computerized spiral analysis (CSA) and cognitive function in Parkinson's patients*  
**Mentor(s):** Brandon Christophe, Department of Neurosurgery, Columbia University Irving Medical Center
- P 91  
**Name(s):** Julia Kelly  
**Department:** Neuroscience and Behavior  
**Poster Title:** *The Impact of Frailty on Neurological Outcomes After Cardiac Arrest*  
**Mentor(s):** Sachin Agarwal, Department of Neurology, Columbia University
- P 92  
**Name(s):** Lili Ladner  
**Department:** Neuroscience and Behavior  
**Poster Title:** *The impact of ovarian derived hormones on adult hippocampal neurogenesis following ketamine administration*  
**Mentor(s):** Christina LaGamma, Division of Integrative Neuroscience, Research Foundation for Mental Hygiene, Inc. and New York State Psychiatric Institute
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**Name(s):** Sara Lee Lanclos  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Information seeking in mice: a behavioral paradigm to study neural circuits for the desire to know*  
**Mentor(s):** Jennifer Bussell, Zuckerman Mind Brain Behavior Institute, Department of Neuroscience, Columbia University
- P 94  
**Name(s):** Emily Lei  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Divergent anxiety-related behaviors between species of deer mice*  
**Mentor(s):** Andrés Bendesky, Department of Ecology, Evolution and Environmental Biology, Columbia University
- P 95  
**Name(s):** Anna Li  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Early Growth Response 1 (Egr1) Gene Expression in the Dentate Gyrus of Mice*  
**Mentor(s):** Joseph LeSauter and Rae Silver, Department of Psychology, Barnard College
- P 96  
**Name(s):** Suriya Lisa  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Male mate choice for high quality females in *Drosophila melanogaster**  
**Mentor(s):** Alison Pischedda, Department of Biology, Barnard College
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**Name(s):** Jennifer Maleh; Gabriella Ortiz  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Metabolic Consequences of Mixing Artificial Sweeteners with Carbohydrates*  
**Mentor(s):** John I. Glendinning, Department of Biology, Barnard College
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**Name(s):** Talia Malekan  
**Department:** Neuroscience and Behavior  
**Poster Title:** *The Effect of Amphetamines on Counting-Based Decisions*  
**Mentor(s):** Peter Balsam, Department of Psychology, Barnard College
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**Name(s):** Tiffany Ming  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Slit-Robo signaling links synapse specificity with functional circuit wiring and behavior*  
**Mentor(s):** Heike Blockus, Department of Neuroscience, Columbia University
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**Name(s):** Lila Olson-Duffy  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Mapping Neuronal Circuits of Color Vision Pathways in *Drosophila Melanogaster**  
**Mentor(s):** Rudy Behnia, Department of Neuroscience, Columbia University Vagelos College of Physicians and Surgeons

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**Name(s):** Kania Rimu  
**Department:** Neuroscience and Behavior  
**Poster Title:** *PERIOD2 Rings in the SCN: Characterizing Morphology & Function*  
**Mentor(s):** Rae Silver, Department of Psychology, Barnard College

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**Name(s):** Alice Sardarian; Sophia Liu  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Does a Spoon Full of Sugar Help the Vodka Go Down?*  
**Mentor(s):** John I. Glendinning, Department of Biology, Barnard College

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**Name(s):** Neeva Shafiian  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Serine to Alanine Mutations to Disrupt Phosphorylation in a Low Complexity Domain in CPEB3*  
**Mentor(s):** Lenzie Ford and Eric Kandel, Zuckerman Mind Brain Behavior Institute, Columbia University

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**Name(s):** Azeezat Siyanbola  
**Department:** Neuroscience and Behavior  
**Poster Title:** *How do individual differences in aspects of threat conditioning relate to episodic memory?*  
**Mentor(s):** Shelby Bachman and Elizabeth Phelps, Department of Psychology, New York University

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**Name(s):** Klara Nedrelow  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Loss of Enteric Glia Affects Paneth Cell Lineage*  
**Mentor(s):** Meenakshi Rao, Salima Soualhi, and Daniella Rastelli, Department of Pediatric Gastroenterology, Hepatology, and Nutrition, Columbia University Irving Medical Center, Children's Hospital of New York

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**Name(s):** Alice Styczen  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Stereological Evaluation of the Blood Brain Barrier in Suicide using Fibrinogen and Glut1 Immunostaining*  
**Mentor(s):** Tatiana Schnieder, Division of Molecular Imaging and Neuropathology, Columbia University

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**Name(s):** Samantha Syme  
**Department:** Neuroscience and Behavior  
**Poster Title:** *The Effect of SSRIS on Apoptosis and Neurogenesis in the Human Brain*  
**Mentor(s):** Maura Boldrini, New York State Psychiatric Institute

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**Name(s):** Shruti Varadarajan  
**Department:** Neuroscience and Behavior  
**Poster Title:** *PERIOD2 Rings in the SCN: Identification and Morphology*  
**Mentor(s):** Rae Silver, Department of Psychology, Barnard College

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**Name(s):** Anastasia Velikovskaya  
**Department:** Neuroscience and Behavior  
**Poster Title:** *5-HT1A receptors activation in the dentate gyrus reproduces antidepressant induced neurogenesis*  
**Mentor(s):** Christoph Anacker, Department of Psychiatry, Columbia University, and Research Foundation for Mental Hygiene, New York State Psychiatric Institute

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**Name(s):** Sabrina Yeh  
**Department:** Neuroscience and Behavior  
**Poster Title:** *Evaluating the impact of Lorcaserin on the reinforcing and positive subjective effects of Oxycodone*  
**Mentor(s):** Sandra Comer, Department of Psychiatry, Columbia University Vagelos College of Physicians and Surgeons

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**Name(s):** Hannah Yueh

**Department:** Neuroscience and Behavior

**Poster Title:** *CA2 input shapes CA1 burst firing and place field remapping*

**Mentor(s):** Macayla Donegan, Department of Neuroscience, Columbia University

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**Name(s):** Margaret Calcio  
**Department:** Environmental Science  
**Poster Title:** *Unidentified Local Source of Lead Contamination in Northern Brooklyn Soil*  
**Mentor(s):** Brian Mailloux, Environmental Science, Barnard College

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**Name(s):** Jessica Guillermo; Avery Kayle  
**Department:** Environmental Science  
**Poster Title:** *Perfluorocarbons as Tracers for Air Exchange and Groundwater Dynamics*  
**Mentor(s):** Martin Stute; Environmental Science Department: Barnard College

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**Name(s):** Maya Landis  
**Department:** Environmental Science  
**Poster Title:** *Keeping the 20th century fashionable: Identification of polyurethanes for textile conservation*  
**Mentor(s):** Peter Bower, Department of Environmental Science, Barnard College

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**Name(s):** Livia Martinez  
**Department:** Environmental Science  
**Poster Title:** *Dimorphic Leaf Development in Living Fossils: Ginkgo biloba*  
**Mentor(s):** Dennis Wm Stevenson, New York Botanical Garden

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**Name(s):** Gemma Sahwell  
**Department:** Environmental Science  
**Poster Title:** *Environmental Radiation Survey of the Marshall Islands*  
**Mentor(s):** Emlyn Hughes, K=1 Project, Columbia University Center for Nuclear Studies

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**Name(s):** Kiran Singh-Smith  
**Department:** Environmental Science  
**Poster Title:** *Analysis of Post-Clean Air Act pH, Alkalinity, and Ecosystem Recovery of 26 Lakes in the Hudson Highlands*  
**Mentor(s):** Peter Bower, Department of Environmental Science, Barnard College; William Schuster, Black Rock Forest Consortium

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**Name(s):** Ellery Vaughan  
**Department:** Environmental Science  
**Poster Title:** *Determining the Seasonal Diet of the Coyote, Canis latrans, Population at Black Rock Forest and Its Affect on White-tailed Deer*  
**Mentor(s):** Peter Bower, Department of Environmental Science, Barnard College; William Schuster and John Brady, Black Rock Forest Consortium

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**Name(s):** Natalia Figueredo Botello  
**Department:** Environmental Science  
**Poster Title:** *The Impact of Particle Association on Temperature-Dependent and Light-Induced Growth Rates of Vibrio sp. in the Hudson River Estuary*  
**Mentor(s):** Elise Myers and Andrew Juhl, Lamont-Doherty Earth Observatory, Columbia University

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**Name(s):** Madeleine Killough; Katharine Scanlan  
**Department:** Environmental Science  
**Poster Title:** *Arsenic Contaminated Pleistocene Aquifers in Bangladesh: Can Microbial RNA Extractions be Used to Source the Carbon?*  
**Mentor(s):** Brian Mailloux, Environmental Science, Barnard College

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**Name(s):** Vivian Klotz  
**Department:** Environmental Science  
**Poster Title:** *Effect of Natural Hydrocarbon Seeps on Phytoplankton Communities in the Gulf of Mexico*  
**Mentor(s):** Ajit Subramaniam, Lamont Doherty Earth Observatory, Columbia University

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**Name(s):** Shelly Lim  
**Department:** Environmental Science  
**Poster Title:** *Distribution of Microplastics in the Waterways around New York City and Their Impacts on Plankton Ecology*  
**Mentor(s):** Joaquim I. Goes and Beizhan Yan, Lamont-Doherty Earth Observatory, Columbia University

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**Name(s):** Sarah Ortiz  
**Department:** Environmental Science  
**Poster Title:** *Microplastics and Microplastic Associated Pharmaceuticals in the Waterways of New York City*  
**Mentor(s):** Beizhan Yan and Joaquim Goes, Lamont-Doherty Earth Observatory, Columbia University

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**Name(s):** Celeste Pallone  
**Department:** Environmental Science  
**Poster Title:** *Surface Sediment Texture in the Eastern Long Island Sound*  
**Mentor(s):** Frank Nitsche and Tim Kenna, Lamont-Doherty Earth Observatory, Columbia University



Scenes from summer, clockwise from top left:

1. At STEM family day, faculty, students, and alumnae share insights on environmental science research.
2. The Alumnae-Student Dinner connected alumnae like Irene Danwa-Mullan (and ten others) to students for a conversation about careers.
3. Professor Sedelia Rodriguez delivers a faculty lecture on the science of volcanoes.
4. Professor Koleen McCrink and students in her lab take a break with Millie the Bear.
5. Students and faculty celebrate the beginning of SRI.
6. Provost Linda Bell delivers remarks at the SRI information session.



