The NSF Graduate Research Fellowship Program

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Two Statements

1. Personal Statement, Relevant Background, and Future Goals (up to 3 pages)
2. Graduate Research Statement (up to 2 pages)

Both statements are reviewed in accordance with the NSF Review Criteria. Collectively, they must satisfy two criteria:

• Intellectual Merit
• Broader Impacts
Two National Science Board-approved Review Criteria:

- **Intellectual Merit**: this criterion encompasses the potential to advance knowledge

- **Broader Impacts**: this criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes
Intellectual Merit

- How important is proposed activity to advancing knowledge and understanding within its own field or across different fields?
- How well qualified is the proposer to conduct the project?
- To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts?
- How well conceived and organized are proposed activities?
- Is there sufficient access to resources?
- If international activities are proposed, are they relevant and do they benefit applicant?
Two National Science Board-approved Review Criteria:

- **Intellectual Merit**: this criterion encompasses the potential to advance knowledge

- **Broader Impacts**: this criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes
Broader Impacts

- How well does activity advance discovery and understanding while promoting teaching, training and learning?
- How well does the proposed activity broaden participation of underrepresented groups?
- To what extent will it enhance infrastructure for research and education?
- Will results be disseminated broadly?
- What may be the benefits of proposed activity to society?
All components of your application should collectively address both criteria:

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<th>Personal Statement, Relevant Background, and Future Goals</th>
<th>Graduate Research Statement</th>
<th>Reference Letters</th>
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**Intellectual Merit and Broader Impacts**

- The two statements should not repeat the same information
- The two statements should collectively demonstrate the intellectual merit and potential for broader impact
• **How do you envision graduate school preparing you for a career that allows you to contribute to expanding scientific understanding as well as broadly benefit society?** Describe your personal, educational and/or professional experiences that motivate your decision to pursue advanced study in science, technology, engineering or mathematics (STEM). Include specific examples of any research and/or professional activities in which you have participated. Present a concise description of the activities, highlight the results and discuss how these activities have prepared you to seek a graduate degree. Specify your role in the activity including the extent to which you worked independently and/or as part of a team. Describe the contributions of your activity to advancing knowledge in STEM fields as well as the potential for broader societal impacts (See Solicitation, Section VI, for more information about Broader Impacts)
Present an original research topic that you would like to pursue in graduate school. Describe the research idea, your general approach, as well as any unique resources that may be needed for accomplishing the research goal (i.e., access to national facilities or collections, collaborations, overseas work, etc.) You may choose to include important literature citations. Address the potential of the research to advance knowledge and understanding within science as well as the potential for broader impacts on society. The research discussed must be in a field listed in the Solicitation (Section X, Fields of Study).
Panelists may consider the following with respect to the **Intellectual Merit** Criterion:

- the potential of the applicant to advance knowledge based on the totality of the content in the application, including the strength of the academic record, the proposed plan of research, the description of previous research experience or publication/presentations, and references
Panelists may consider the following with respect to the **Broader Impacts** Criterion:

- the potential for future broader impacts as indicated by personal, professional, and educational experiences
Broader Impacts may be accomplished through:

- the research itself
- the activities that are directly related to specific research projects
- activities that are supported by, but are complementary to, the project.
NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to:

- full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM)
- improved STEM education and educator development at any level
- increased public scientific literacy and public engagement with science and technology
- improved well-being of individuals in society
- development of a diverse, globally competitive STEM workforce
- increased partnerships between academia, industry, and others
- improved national security
- increased economic competitiveness of the US
- enhanced infrastructure for research and education.
Welcome!

WISC provides outreach, support, advancement, community, and more, for women, underrepresented minorities, and their supporters in the science, technology, engineering, and mathematical (STEM) fields at Columbia — and across NYC. Join our mailing list to hear about events, and click below to learn more!

Get Involved ›

Our Sponsors
We are grateful for financial support from the Astronomy, Applied Physics & Applied Math, Biological Sciences, Chemistry, Microbiology & Immunology,
About

The Columbia Secondary School for Math, Science, & Engineering is a public, sixth through twelfth grade school that opened in the fall of 2007. A partnership between the New York City Department of Education, the community, and Columbia University, CSS-MSE serves academically talented students who have an interest in a rigorous and demanding program focusing on math, science, and engineering. The school reached its full enrollment of close to 700 students during the 2013-2014 school year and graduated its first class of seniors in June, 2014.

The school is located on the 5th, 4th, & 3rd floors of the Ralph Bunche Educational Complex on 123rd St between Amsterdam and Morningside Avenues.

School Mission Statement

Columbia Secondary is a selective, public, college preparatory school with a focus on science, math, and engineering. Its program of study provides a challenging academic experience that prepares its students for selective colleges; for careers in science, math, and engineering; and for a life of civic engagement and ethical responsibility. We train students to be socially and politically conscious, to be aware of their responsibility to their communities and the world, and to be dedicated to a life of service and discovery in service of humanity.
Staff Directory

Principal: Miriam Nightengale
Assistant Principal: Daniel Novak
Assistant Principal: Lenice Nelson
Dean and Athletic Director: Arthur Puritz
Admissions Director: Roxana Bosch

Parent Coordinator: Andi Velasquez
Secretary: Dolores Rivas
School Counselor: Elsa Cordoba
School Counselor: Amanda Robin
Speech Therapist: Karen Han
College Guidance Director: Cara Short

School Calendar

See School Calendar for A/B Schedule

Back to School Information
Homeroom Announcements
Summer Homework

Download September Calendar
Download September Calendar en Español
Download 2015-2016 Event Calendar
Download 2015-2016 Event Calendar en Español
Science Expo 2014
Saturday, March 8 | 12 noon – 4 p.m.
theschool.columbia.edu/sciexpo14
#iAmNYAS: Yana Zorina
Meet Cell Biologist and Academy Member Yana Zorina, PhD. More ▶

Graduate Research Fellowship Program
NSF GRFP
Tuesday, September 22, 2015 | 3:00 PM - 5:00 PM
This webinar will provide an overview of the National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) and program updates for the FY 2016 competition (incl. deadlines, application and review processes).
Science Education
Supporting students from kindergarten through college
Visit the new Global STEM Alliance website

Overview

For nearly 200 years the New York Academy of Sciences has brought together extraordinary people working at the frontiers of discovery and has promoted vital links between science and society. The Academy has a history of building new scientific communities, constructing innovative connections among an extensive scientific network, and driving path-breaking initiatives for scientific, social, and economic benefit.

The Academy has a three-pronged mission: to advance scientific research and knowledge, to help resolve the major challenges facing society, and to enhance public understanding of science and technology.
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<td>Advising governments, industry, and academia on science policy</td>
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Volunteer Now

Did you know that more than 50% of our volunteers work directly with the public? Every year, more than a thousand volunteers help the American Museum of Natural History meet its mission and goals by donating in excess of 130,000 hours per year to the Museum. We would like to take a moment to thank all our volunteers for their hard work and dedication.

Volunteers work individually or in groups, performing a variety of duties throughout the Museum. The Museum is open to the public seven days a week, and volunteers are utilized at all times. All the "behind the scenes" volunteer positions, including the science departments, are only available Monday-Friday during normal business hours. Our volunteers are from diverse backgrounds and reflect the population of the city. There are two volunteer categories: Volunteers who work with the Public and Volunteers who work behind-the-scenes as Research and Departmental Volunteers. Learn more about them by reading further.
Conservation and Scientific Research

The Metropolitan Museum houses a world-renowned complex of scientific research and conservation facilities, each of which serves as a training ground for conservators from around the world. Three major conservation areas—Objects Conservation, Paintings Conservation, and Works on Paper/Photography Conservation—are supported by and named for the Sherman Fairchild Foundation. In addition, the Museum maintains specialized studios for Asian art, costume, and book conservation.

The Department of Scientific Research, a core group of scientists who collaborate with curators and conservators throughout the Museum, is responsible for investigating the material aspects of works of art in the Museum’s collections. Scientists in the department cooperate with conservators and curators in studying, preserving, and conserving works, and also pursue innovative research in analytical techniques, preventive conservation, and treatment methodologies.

Now at the Met

Now at the Met offers in-depth articles and multimedia features about the Museum’s current exhibitions, events, research, announcements, behind-the-scenes activities, and more.

Heilbrunn Timeline of Art History
Storefront Science engages children through inquiry and exploration.
Utilizing wonder, discovery and the process of science, we encourage children to "explore outside your door" with concepts that promote questioning, gathering information, co-operation and critical thinking.
HYPOTHEkids

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Columbia Spectator, The New York Times

covered by:

HYPOTHEkids (HK), a 501c3 organization, is a K-12 STEM education initiative of
Harlem Biospace. Harlem Biospace is a co-working lab space for the NYC's
leading biotech startup companies, and is developed in partnership with New
York City Economic Development Corporation.

We started HYPOTHEkids to leverage this great resource to help develop and
inspire a new generation of scientists, engineers, and technology entrepreneurs.
HK develops students' science and engineering abilities through in-school and
after-school lab hours, summer programs, and a girls' science club.

Taking advantage of the resources of Harlem Biospace, we teach students from
the perspective of biotech entrepreneurship: from nurturing a love of science,
discovery and sparking the "maker" passion in the early years to providing an
incredible foundation in biomedical engineering product design and prototyping
for students in their final years of high school.

Want HYPOTHEkids In Your School?

Learn about the "HK after-school program" for 2014-2015

TWO WEEKS LEFT! Summer Science Program

For K-6 kids, limited slots still available
Next week: SPECIAL "Science of New York City" (Skyscrapers, Bridges,
Ecology)
Final week: "Kidvector Week" (Circuits + 3D Printing + Imagination)
"I'm capable of doing things I never thought I could do. I'm motivated to start my own company. I want to make a difference in my community." — Diana, 16
NanoDays 2014 March 29-April 6

NanoDays 2013 was March 30-April 7, 2013. All NanoDays 2013 physical kits have been allocated. Please check back here this fall for more information about NanoDays 2014 events and resources.

Don't forget your NanoDays 2013 Report!
The NanoDays 2013 report is still available. All those who received a physical kit in 2013 must submit the 2013 report. Fill out your online report today.

Now this year, NanoDays 2013 activity training videos! Check out the NanoDays Blog to watch and download for staff!

The NanoDays 2013 Digital Kit is available for download.

What could YOU do for NanoDays? NanoDays activities bring university researchers together with science museum educators, creating unique learning experiences. NanoDays engages people of all ages in a miniscule world where materials have special properties and new technologies have spectacular promise. Many NanoDays celebrations will combine simple hands-on activities for young people with events exploring current research for adults. NanoDays activities demonstrate different unexpected properties of materials at the nanoscale -- sand that won't get wet even under water, water that won't spill from a teacup, and colors that depend upon particle size. Some NanoDays participants host public forums, discussions about the risks and benefits of particular applications of nanotechnology. Many participating universities host public tours of their laboratories that work with nanoscale science and technology. For lots of ideas about what you could do for NanoDays, browse our online catalog.

Why Nano?
Affordable clean energy, highly effective medical devices, personalized drugs, new environmental cleanup techniques... Many scientists and engineers believe advances in nanotechnology can bolster the U.S. economy with products like these and many others.

Despite this promise, the public knows little about nanotechnology or the research and development being carried out by numerous federal agencies and by universities and corporations right in their own communities.

See who is engaging their community in this emerging science by participating in NanoDays!
Community Outreach

From science fairs to Maker Faires, Genspace is there.

More Info

Genspace in the News

#ScienceHack: Violation Factory Design Automation with OpenTron...
Genspace in China...
Bacterial Photography: Creating Photosynthetic Images Using Living Microorganisms...
TED Video of Stranger Visions...
Member Project: Vivian Xu's Living Devices...
At World Science Festival...
WelPong!
More news items...

Remember when science was fun?
At Genspace it still is.
Genspace is a nonprofit organization dedicated to promoting education in molecular biology for both children and adults. We work inside and outside of traditional settings, providing a safe, supportive environment for training and mentoring in biotechnology.

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