

# NSF Graduate Research Fellowship Workshop

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August 25, 2023, 1:00-2:00 pm (slides available at  
<https://www.math.ucla.edu/~hitrik/workshop.html>)

- The National Science Foundation (NSF) is a United States government agency.
- It supports fundamental research and education in all the non-medical fields of science and engineering.
- The NSF funds approximately a quarter of all federally supported basic research conducted by the United States' colleges and universities. In mathematics the NSF is the major source of federal funding (Wikipedia).
- Webpage: <https://www.nsf.gov/>

- The NSF Graduate Research Fellowship Program (NSF GRFP, <https://www.nsfgrfp.org/>) offers grants to doctoral level students in science, technology, engineering, and mathematics (STEM fields) at US institutions.
- Currently, about 12,000 students apply annually for Graduate Research Fellowships, of which more than 2,000 receive awards. For 2024, NSF will support at least 2,500 new Graduate Research Fellowships.
- Benefits: Three year annual stipend of \$37,000 plus \$16,000 towards the costs of tuition and fees (paid to the institution). NSF fellowship awardees will have no TA obligations throughout the three year period  $\Rightarrow$  there is a significant amount of extra time to work on their research.
- More details (Program Solicitation):  
<https://www.nsf.gov/pubs/2023/nsf23605/nsf23605.htm>

# Some numbers

- 40 NSF Graduate Research Fellowships went to applicants from UCLA in 2023 (out of 2,555). Three of them were in Mathematical Sciences: Ryan Arbon, Harris Hardiman-Mostow, Frank Zheng. (Four incoming graduate students received the NSF fellowship in 2020.)
- A total of 102 went to Mathematical Sciences.
- It is a realistic goal that the Department of Mathematics at UCLA should receive 2–3 fellowships each year.

# Why should I apply?

- This year, about one out of every 6 applications was funded; so the chances are fairly decent.
- While preparing an application takes some effort, it is well worth your time. This is also a great learning experience for your professional development. (Important for the future!)
- Submitting an application helps mathematics as a field and benefits the department.

# How do I apply?

- Eligibility: US citizens and permanent residents. Undergraduate students may apply in their senior year. Graduate students enrolled in a degree granting graduate program are limited to **only one application to the GRFP**, submitted in the first year or at the beginning of the second year of their degree program. Currently enrolled second year graduate students are strongly advised to provide official transcripts as part of their application.
- Deadline for Mathematical Sciences: Friday, October 20, 2023, 5:00 pm local time. Awards announced the following April.
- Applications should be submitted through the Research.gov/GRFP site (<https://www.research.gov/grfp/>, registration required). Formatting guidelines must be followed!

# Four application components

- 1. Academic transcripts.
- 2. Personal, Relevant Background, and Future Goals Statement (max. 3 pages).
- 3. Graduate Research Plan Statement (max. 2 pages including references).
- 4. Three letters of recommendation (max. 2 pages).

## Important

Both statements have to explicitly address NSF's "Merit Review Criteria": Intellectual Merit and Broader Impacts.

- Intellectual Merit: the potential to advance knowledge.
- Broader Impacts: the potential to benefit society. Broader impacts in the research proposal could include connections between subfields, industry applications, outreach/undergrad research opportunities linked to the proposed research, etc.



Personal, Relevant Background, and Future Goals Statement  
(max. 3 pages):

- Outline your educational and professional development plans and career goals.
- How will graduate school prepare 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 studies in mathematics. Include specific examples of activities.

A good starting point: Update and modify personal statement from your graduate school application.

# Graduate Research Plan Statement

Max. 2 pages.

- Present an original research topic that you would like to pursue in graduate school.
- Describe the research idea and your general approach.
- Include important literature citations.
- Address the potential for broader impacts.

A good starting point: REU and other research projects, summer workshops, a graduate course in an interesting area.

While this may be read by experts in the area, even experts appreciate lucidity and simplicity, so avoiding being too technical and keeping it simple is a good idea!

# Three letters of recommendation

## Suggestions:

- Most important: choose letter writers that know you well!
- For first year students: two letters from your undergraduate institution and possibly one from UCLA (?)
- For second year students: two or three letters from UCLA and maybe one letter from your undergraduate institution (?)
- Approach the potential letter writers early on.
- Talk to them about your plans.
- Ask them for advice and feedback on your statements.

Please see

<https://joycechew.github.io/resources/grfp>

for some thoughts and additional resources, including Joyce's application materials.