The NSF Graduate Research Fellowship Program

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Agenda

- Introductions
- Part 1 – Program Overview (eligibility, review criteria)

  Short Break
- Part 2a – Personal Essay Brainstorm and Feedback
- Part 2b – Research Statement Brainstorm and Feedback
- Final Remarks & Questions

Program Overview

- Purpose:
  - Help ensure the quality, vitality, and diversity of the **scientific and engineering** workforce of the United States.
  - Recognize and support outstanding graduate students pursuing full-time research-based master's and doctoral degrees in science/social science, technology, engineering, and mathematics (STEM) or in STEM education.

Program Overview

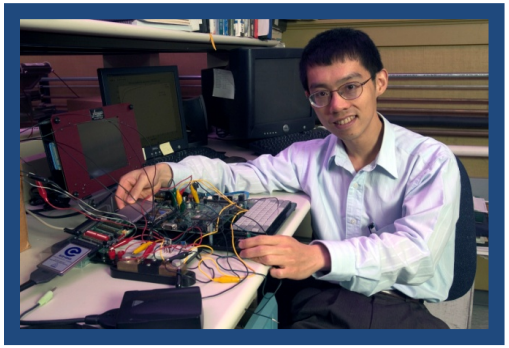
- Prestigious early career award.
  - $34,000/yr for three years over five years.
  - $12,000/yr tuition supplement paid to institution.
  - ~2500 awards to be made

- Program solicitation, NSF 21-602

https://www.nsf.gov/pubs/2021/nsf21602/nsf21602.pdf

- May only apply only once!
- Social Sciences Deadline: 5:00 PM local time, Oct 19, 2021.
- Reference Letter Deadline: 5:00 PM ET, October 29, 2021

Eligibility Criteria



- U.S. citizens and permanent residents.
- Early-career graduate students.
- Pursuing research-based MS and PhD.
- NSF supported fields.
- Enrolled in accredited US institution.

Academic Levels

- 1: Seniors/baccalaureates; no graduate study.
- 2: First-year graduate students.
- 3: Second-year graduate students.
- 4: >12 months graduate study (extenuating circumstance, Interruption in graduate study).

Components of the Application

- Application must be submitted electronically via Research.gov web site: https://www.research.gov/grfp/Login.do

- **Personal, Relevant Background and Future Goals Statement** (max 3 pages).
- **Graduate Research Plan Statement** (max 2 pages).
- **"CV" section**: Personal Information; Education, work and other experience; Proposed Field of Study; Proposed Graduate Study and Graduate School Information
- **Transcripts.**
- **3 letters of recommendation** (get 5, use best 3)

Reviewers (3) See a Single PDF File

- CV: level (1-4), Educational background, work experience, honors, awards, list of publications and conference presentations
- Personal Statement (3 pages)
- Graduate Research Statement (2 pages)
- Transcripts
- 3 letters of recommendation

Two Main Review Criteria

- **Intellectual Merit**
  - Potential to advance knowledge within the scientific field.
- **Broader Impacts**
  - Potential to benefit society and contribute to specific, desired societal outcomes.
- Clearly label these two sections in both written statements.

Intellectual Merit

- Potential to advance knowledge within field.
  - Strength of academic performance.
  - Research plan.
  - Publications, letters of reference.
- Academic performance.
  - Awards and honors, communication skills, international experience, independence, creativity, research plan, institutional match
  - Especially research experience.
  - Not all have to be met.

Broader Impacts

- Potential to benefit society.
- Integrate research and education, diversity and underrepresented populations, enhance global scientific workforce, policy implications, communicate to diverse audiences, plans that benefit society, community outreach.
- Examples:
  - Experiences working with disadvantaged youth.
  - Family experiences.
  - Leadership in research or community setting.
- Not all have to be met.
- Clearly label these two sections in written statement.

Elements of IM & BI

- What is the potential of the proposed activity to: a) advance knowledge and understanding within/across scientific field(s); b) benefit society or advance desired social outcomes?
- To what extent do the proposed activities suggest and explore creative, original or potentially transformative concepts?
- Is the research plan well-reasoned, well-organized, based on sound rationale?
- How well qualified is the applicant and institution to conduct proposed activities?
- Are there adequate resources available to applicant to carry out proposed activities?

Application Review Form

Intellectual Merit Rating *	○ Excellent ○ Very Good ○ Good ○ Fair ○ Poor In the context of the five review elements, please evaluate the strengths and weaknesses of the application with respect to intellectual merit.
Intellectual Merit Comments *	
Broader Impacts Rating *	○ Excellent ○ Very Good ○ Good ○ Fair ○ Poor In the context of the five review elements, please evaluate the strengths and weaknesses of the application with respect to broader impacts.
Broader Impacts Comments *	
Summary Statement *	
Overall Score *	Score must be a whole integer between 1 – 50

Rating Applications

Quality Groups (QG)	Ratings (E – P)	Score (1–50)
QG 1: **Highly Meritorious** Recommended for Fellowship	Excellent	50 – 40
QG 2: **Meritorious** Recommended for Fellowship /Honorable Mention	Very Good	39 – 30
QG 3: **Not Recommended**	Good	29 – 20
Not eligible to receive Fellowships/Honorable Mention	Fair Poor	19 – 10 9 – 1

Z scores

$$z = \frac{\text{Raw Score} - \text{mean of individual panelist's scores}}{\text{Standard deviation of individual panelist's scores}}$$

- Normalize between panelists' scoring tendencies

Application Review Process – Virtual Panel Activities

- Day 1 Panel Deliberations
  - Day 1 Ranking Report
  - Discrepancies resolution
  - Quality Group (QG) placement
- Panelists review and revise evaluations, if necessary
- Day 2 Panel Deliberations
  - Day 2: Discuss candidates at margin of QGs.

Preparing a Competitive Application

Love & Trust

- Need to make reviewers love and trust you.
- Don't just give information. Tell a compelling story.

  "A good story offers reviewers an arc of events and a protagonist they can identify with. A great story engages and excites them." ~Alan Paul, Giant Angstrom

- Identify pivotal moments or turning points in your life; place them in a structured plot; and describe them with dramatic flair

Adapted from A. Paul, *Telling your Story, Selling Yourself: What does it take to wing an NSF Graduate Research Fellowship?* Giant Angstrom

Love

- Help reviewers connect with you personally:
  - What motivates you?
  - What are your goals?
    - E.g., What event convinced you to pursue graduate study? Which institution and why? What are your career goals? How do you envision your long-term success?
- Tell stories about situations in which they can imagine themselves doing the same thing you did.

Adapted from A. Paul, *Telling your Story, Selling Yourself: What does it take to wing an NSF Graduate Research Fellowship?* Giant Angstrom

Trust

- Describe a solid work plan

- Showcase your Preparation
  - Catalog and describe relevant skills you've acquired:
    - Technical skills
    - Research project management skills
    - Communications skills

What was the most difficult research (or other project/task) that you undertook? What made it hard? How did you handle it?

Adapted from A. Paul, *Telling your Story, Selling Yourself: What does it take to wing an NSF Graduate Research Fellowship?* Giant Angstrom

Personal Statement (Love):

- Tell your story
- Demonstrate your potential for STEM research
  - Experiences (personal and professional) that motivated and prepared you for pursuing a STEM career (research/industry/professional/volunteer)
    - *What was the project/activity? How did you become involved? Where did it take place? What was your contribution? What challenges did you face? What did you learn?*
  - Career aspirations and future goals – *How have your experiences shaped your goals?*

Research Statement (Trust)

- Describe your Research Plan
  - Communicate your research idea and approach
  - Explain your research plan and methods
  - What do you expect to learn? How will you know if the project is successful?
  - What would you do next?
- Address NSF's review criteria (IM and BI)
- Avoid jargon and communicate clearly for non-specialists; make your contributions clear

Observations from Prior Panelist

Former Associate Dean Saberi

- The program funds the person, not the project.
- Letters of reference play an important role.
- List any publications, conference presentations, local talks if you have them.
- If you have good GREs or GPA, put it in the personal statement.
- Mention broader impacts in both personal statement and research proposal.
- List volunteer work of any type (at museum, in community).

- Include any mentoring: lab tours to high school students, TA service, training TAs/RAs, tutoring.
- Write in potential implications for public policy. Name one or two public organizations to which your work may be relevant.
- Mention impact on STEM fields.
- Mention diversity:
  - How your research plan or career goals could help increased participation of URMs.
  - Mention if you are a first generation college or grad school.
  - Mention if you have URM background.
- To keep it easier for reviewers to read, use subheadings (background, methods, anticipated results) & figures, if appropriate.

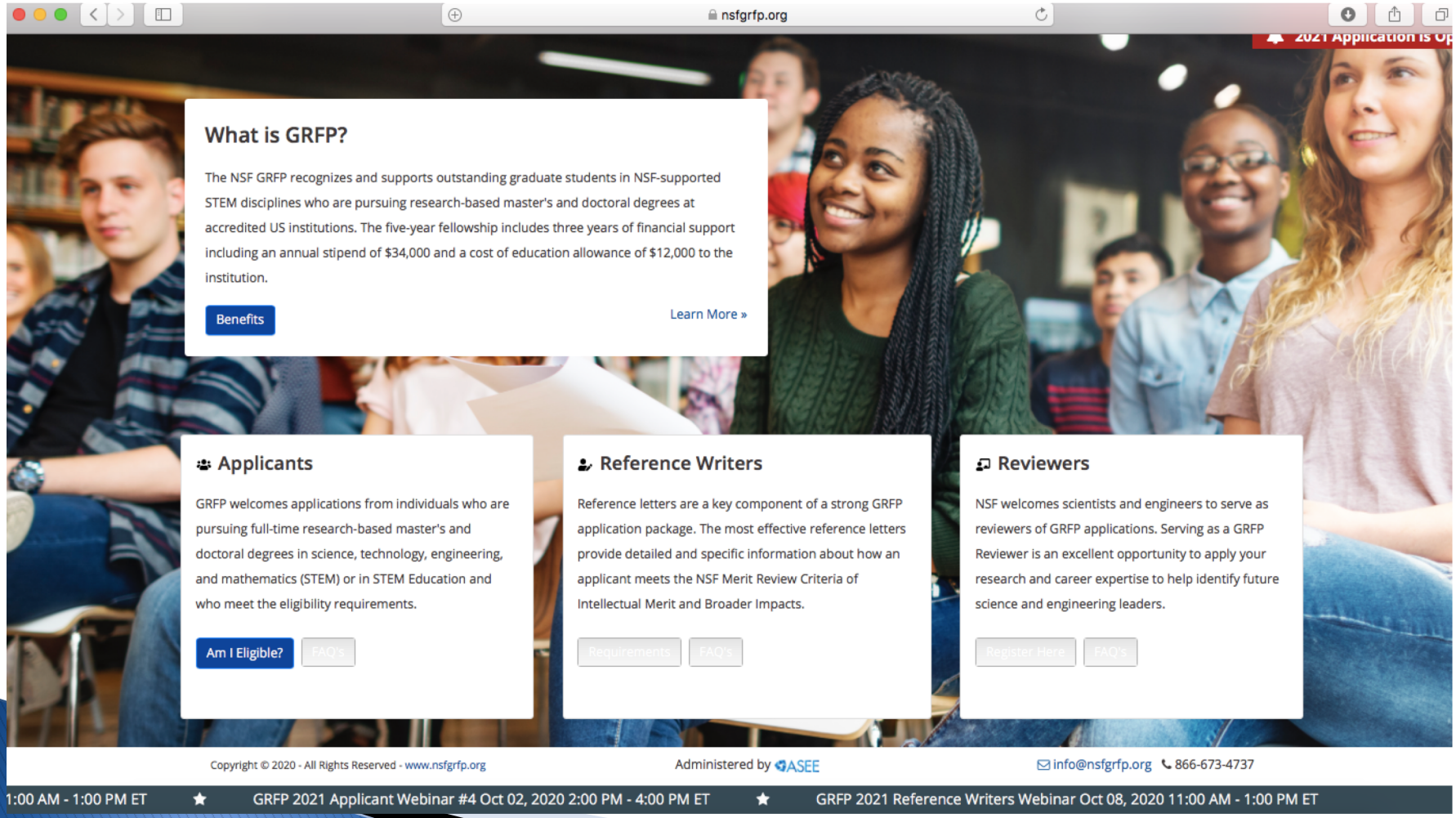
Observations from Grad Division

- Avoid clichés.
- Write about specific accomplishments, not broad statements.
- No sob stories: focus on resilience and be positive.
- Write about experiences in chronological order.
- Clearly state why you are pursuing a PhD.
- Don't use too much jargon.
- Get to your points quickly.
- Check grammar!

When to apply?
1st Year or 2nd Year?

Additional Resources

NSF GRFP website https://www.nsfgrfp.org – and Webinars



Extra Help

- UCI Graduate Resource Center:
  - Writing consultants
  - Recorded webinars on website
  - GRFP Office hours
  - Successful applications binder
  - For more information about the NSF GRFP and resources available for UCI applicants, contact:
    - Dr. Kayleigh Anderson-Natale at grc@uci.edu; 949-824-5196 or make appointment online
- Next Social Sciences workshop – **October 5th**; 9:00-12:00 PM (draft essays to be submitted by **September 28th**)

More Resources

- MIT Communication Lab – Essay Tips:
  - Personal: https://mitcommlab.mit.edu/nse/commkit/nsf-personal-statement/
  - Research: https://mitcommlab.mit.edu/cheme/commkit/nsf-fellowship-research-proposal/
- Mallory Ladd website – Advice to Applicants: http://www.malloryladd.com/nsf-grfp-advice.html
- Winning Essays: https://docs.google.com/spreadsheets/u/1/d/1xoezGhbtcpg3BvNdag2F5dTQM-Xl2EELUgAfG1eUg0s/htmlview?usp=sharing&sle=true – be sure to view those after 2015

Questions?

Part II – Essay Preparation

Personal Statement (Love):

- Tell your story
- Demonstrate your potential for STEM research
  - Experiences (personal and professional) that motivated and prepared you for pursuing a STEM career (research/industry/professional/volunteer)
    - *What was the project/activity? How did you become involved? Where did it take place? What was your contribution? What challenges did you face? What did you learn?*
  - Career aspirations and future goals – *How have your experiences shaped your goals?*

Guiding Questions

- How did you become interested in the discipline you are pursuing? What events or experiences shaped your decision?
- Has your interest been "life long" or did you stumble into it?
- Was there a particular "aha!" moment that led you to your career choice? Or, was it a series of events or experiences?
- Were you inspired by a particular individual? Who? How?
- What other experiences have you had that have "defined" you as a person and scholar/scientist?
- What opportunities have you had (or created) to undertake research? What did you do to pursue these? What did you learn from the experience?

Research Statement (Trust)

- Describe your Research Plan
  - Communicate your research idea and approach
  - Explain your research plan and methods
  - What do you expect to learn? How will you know if the project is successful?
  - What would you do next?
- Address NSF's review criteria (IM and BI)
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Guiding Questions

- What is the problem or puzzle you want to solve?
- What's already been done (and how does is fall short of fully solving the problem or puzzle)?
- What is your "special sauce" (*the special opportunity you present for the funder to really make a difference with this award*)?
- What are you going to do? (*What methods would be most appropriate and why? What do you expect to come out of the research?*)

Final Comments

- Successful proposals generate excitement
- Open with a "hook" – an interesting, attention grabbing statement – tell a compelling story
- Align statements with agency's mission, goals, and review criteria – NSF: BASIC SCIENCE
- Follow all guidelines and formatting instructions
- Write clearly, in language understood by education person outside your discipline
- Check, re-check grammar, spelling, punctuation, etc. "Sloppy writing = Sloppy science"
- **Don't get discouraged if you don't get the fellowship.**

Upcoming Workshops

- NSF GRFP Essay Workshop – October 5th
  - Draft essays to be submitted September 28th.
- Ford Foundation Workshops
  - Part 1 – Overview/Brainstorming – November 3rd
  - Part 2 – Essay workshopping – December 2nd.
- Other workshops for Graduate Students
  - Funding research in social/behavioral sciences – Jan
  - NSF Doctoral Dissertation Research – ~Feb
  - Art of Proposal Writing – late spring (May/June)