Winning Strategies for GRFP

(and How to Get Started)

Professor Susan E. Brennan
susan.brennan@stonybrook.edu
Cognitive Science Program
Stony Brook University

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2022 SUNY Webinar Series

Webinar #1: **Applying to NSF's Graduate Research Fellowship Program**
(All the basics, such as eligibility, GRFP benefits, parts of the application, the review process, and basic tips)

Webinar #2: **Winning Strategies for GRFP (and How to Get Started)**
(How to maximize your broader impacts and intellectual merit, writing for your audience, and other tips and winning strategies)

TODAY'S PLAN:

1. **What's new with NSF's GRFP competition**
2. **How to get started**
3. **Mistakes not to make**
4. **Broader impacts**
5. **A bit about reviews**

Webinar #3: **Write! (As if your Career Depends on it)**
(Write about your research in an interesting and lively way, tailored to your audience)

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NSF's Graduate Research Fellowship Program

The stipend level has just gone up:

Five Year Award, worth $147,000

- Three years of support
  - **$37,000 stipend per year**
  - $12,000 educational allowance to institution

And the number of awards made this year will increase, up to 2,750!!

See GRFP's brand new 2022 Solicitation (search for NSF 22-614)

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Your potential to become a GRFP fellow

- Previous research experiences
- Evidence of research productivity
- Strong g.p.a. *(GREs are no longer used!)*
- A compelling narrative about your personal and research experiences *(the past and the present predict the future)*
- A clear and well-designed plan for a research project
- If possible: Evidence of your creativity, passion, vision, outreach
- Three walk-on-water letters of recommendation
- In short: A coherent picture of *you,* and why NSF should take a chance on you.

RIGHT NOW, before the October deadine: Identify any weaknesses while there may still be time to address them.

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Between today and the GRFP deadline...

Identify any weaknesses *now* while there may still be time to address them.

Move your research projects along in the pipeline!

Lay the groundwork *now* for demonstrating your potential.

Start drafting your statements early, and show them to your mentors.

There are many things outside of your control!
Be sure to control the things you can.

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Parts of the GRFP application

1. Achievements and personal information
   - Education & work experience, field of study, research experience (posters, presentations, publications), honors and scholarships
2. Personal Statement (3 pages) – *Tell your story!*
   - What motivates or inspires you? What drew you into research?
   - How have you taken initiative or dealt with obstacles or hardships?
   - Describe your projects, your contributions, and your future goals
   - Label your personal *Intellectual Merit* and *Broader Impacts*
3. Graduate Research Plan (2 pages) – *Evidence of how you think*
   - Your research idea, brief background, approach, methods, predictions
   - What do you expect to learn? What if it doesn't go as planned?
   - Label your research plan's *Intellectual Merit* and *Broader Impacts*
4. Transcripts (uploaded electronically)
5. Three letters of reference (see *Solicitation* for deadline)

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In your statements, connect the dots to NSF's Review Criteria

	You (Personal Statement, 3 pp.)	Your work (Research Plan, 2 pp.)
Intellectual Merit *(Creation of new knowledge)*	**Your merit** – motivation, ability, research experiences, preparation, achievements, perseverance, future goals	**The merit of your work** – topic, innovation, rigor, creativity
Broader Impacts: *(Benefits to society)*	**Your impact** – background, personal story, broadening participation, outreach, initiative, leadership, communicating science	**The impact of your work** – its foundational nature, relevance, importance

You MUST include separate headers in both statements for IM and BI !!!

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How to get started

- Remember that a GRFP application is about YOU. Tell YOUR story. (Don't just list your achievements and experiences—*connect* them!)
- Drawing a blank? Sit down with a friend (outside of your field, ideally) and tell them about your personal story and about your research.
- **Should you look at examples of successful applications?**
  - BEWARE – Looking at examples before engaging in a creative activity has been shown to actually *limit* your creativity.
  - So, draft your statements *before* looking at any examples. (If you must, look at examples *outside of your field of study*.)
  - Do not model your application blindly after someone else's – it may have won *in spite of* some of its characteristics.
  - Another caveat - How *old* is the example you're looking at? Remember that the GRFP format and guidelines are subject to change.

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Common weaknesses and missed opportunities

- Incoherent personal statement that does not tell a clear story
- Research plans that are unclear, incomplete, or unpolished
  - Too much or too little detail in research plan
  - Failure to "own" your own research
  - Naïveté about riskiness of project or about how science works
- Dense writing that is difficult to understand or uninteresting
- Failure to address *Broader Impacts*

Do not miss the opportunity to get comments on your statements from mentors & colleagues!

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Other issues, harder for you to control:

- A borderline or variable G.P.A.
- Insufficient research experience (productivity: posters, publications)
- Lack of a mentor (this is a structural problem in some programs)

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Really really really dumb mistakes

- Not reading the Solicitation. There are changes from time to time!
- Just missing the deadline. Do not wait until the last few hours to submit! There are absolutely positively no acceptable lateness excuses for you or your reference letter writers. Log into Fastlane early to get used to the application format.
- Cheating on the font size or margins. These are checked by Fastlane and applications with violations are returned without review. Use only 11-pt Times NR (incl. for refs.)
- Uploading your Research Plan twice (in place of your Personal Statement)
- Uploading transcripts that cannot be read (e.g., require passwords)
- Submitting a Research Plan with a biomedical focus *(except Biomedical Engineering)*
- Submitting a Research Plan that *reads* like it was (or was *actually*) plucked from your advisor's grant application. Your application must reflect your own original work!
- Giving short shrift to your Broader Impacts
- Leaving out achievements or not conveying them clearly
- Poor communication with letter writers (do acquaint them with GRFP!)

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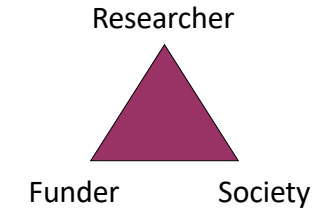
Broader Impacts:
A three-way relationship



(Adapted from Illes, 1999)

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What are "broader impacts"?

- Your potential to benefit society and contribute to the achievement of specific, desired societal outcomes, as indicated by personal experiences, professional experiences, educational experiences and future plans.
- Broader impacts may be accomplished through the research itself, activities directly related to your research project, activities supported by, but complementary to, your project.

(adapted from the Solicitation)

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NSF places high value on these Broader Impacts:

- Developing a diverse, globally competitive STEM workforce, with full participation of women, people w/ disabilities, & under-represented people

What does NSF mean by "Broadening Participation" ?

Engaging people from the following in STEM and STEM education:

- First-generation college students
- People from low-income backgrounds
- U.S. military veterans
- Immigrants or their children
- People from groups underrepresented in science and academia such as people from ethnic, racial, or genders who may be underrepresented in a scientific or academic field
- Rural residents and Non-traditional students
- Students from smaller colleges or non-research-active schools
- Children

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NSF places high value on these Broader Impacts:

- Developing a diverse, globally competitive STEM workforce, with full participation of women, people with disabilities, and under-represented people
- Geographic diversity – Did you attend high school in an EPSCOR state?
  (states that receive < .75% of NSF's budget)

Alabama	Louisiana	Oklahoma
Alaska	Maine	Puerto Rico
Arkansas	Mississippi	Rhode Island
Delaware	Montana	South Carolina
Guam	Nebraska	South Dakota
Hawaii	Nevada	Vermont
Idaho	New Hampshire	Virgin Islands
Iowa	New Mexico	West Virginia
Kansas	North Dakota	Wyoming
Kentucky		

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NSF places high value on these Broader Impacts:

- Developing a diverse, globally competitive STEM workforce, with full participation of women, people with disabilities, and under-represented people
- Geographic diversity – Did you attend high school in an EPSCOR state?
- Improving STEM education and educator development at any level
- Enhancing infrastructure and technology for research and education.
- Increasing public scientific literacy and public engagement with science and technology
- Improving well-being of individuals in society
- Increasing partnerships between academia, industry, and others
- Improving national security
- Increasing economic competitiveness of the US

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Possible kinds of broader impacts

- from any personal, cultural, ethnic, intellectual diversity that you yourself may embody

  (but that alone is not enough…
  how will you put your background to good use?)

- from your previously demonstrated commitment to outreach to the public, increasing opportunity in STEM research for others, or having other positive impacts, either from your activities or your research.
  - Your discoveries may have implications for addressing important human problems or may provide foundational knowledge for other fields.
  - Your research itself may result in new tools, methods, data sets, web sites that may be useful to other scientists, to teachers, or to the public. Describe these, with a plan for disseminating them. Think: IMPACT!

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Reviews

Holistic review is a flexible, individualized way of assessing an applicant's interests and competencies by which balanced consideration is given to experiences, attributes, and academic achievements and, when considered in combination, how the applicant has **demonstrated potential** for significant achievements in science and engineering.

Typically, each application receives 3 reviews.

Reviews consist of 3 comments (one for IM, one for BI, and one Summary comment), plus two qualitative ratings (for IM and for BI):

Excellent, Very Good, Good, Fair, Poor

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How reviewers judge your broader impacts:

- Predicting the future: Your past and present impacts
  - Describe formative experiences may have shaped or inspired you
  - Have you overcome any hardships or obstacles?
  - What makes you tick? How do you think?
  - Give examples: initiative, curiosity, leadership, teamwork, independence, resilience. SHOW, DON'T TELL!
  - Describe your role and any experiences with problem-solving, leadership, etc.
  - Describe experiences with diversity, int'l experiences, travel
  - Don't just list experiences; connect them in your personal narrative.

- Present a detailed and memorable plan in your Personal Statement
  - If possible, connect the dots between your past and your future
  - If your pact impacts are not well-developed (e.g., no outreach), present a detailed well-motivated plan for moving forward.

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Opportunities for SUNY students to shine

- Being at a diverse, affordable school that does not cater to the 1% !
- WISE: Women in Science and Engineering Program*
  - 6-week lab rotations
- Alda Center for Communicating Science to the Public*
- Center for Inclusive Education (and the initiatives it houses)*
- Creative ways to disseminate your research
  - K-12 students – schools, science museums – *lay the groundwork!*
  - Scientific literacy for the general public (remote communities, senior citizens, etc.) – *be creative!*
  - Combine science and activism – public policy, educating politicians
  - The Internet – Tools for teachers? Outreach to students?
  - Individual mentoring – but give details, and extend your reach!
  - Interdisciplinary activities bridging domains, methods, theories, data

** SBU programs – your school may have these or similar programs—ask your Fellowship Office!*

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Keep in mind that a fellowship can free up some of your time

- *not only to follow your own research interests (beyond the focus of your PI's lab)*
- *but also to have the kind of impact that you might not be able to achieve as the average graduate student!*

Think about what kind of Broader Impacts activities that *you* could do better than anyone else—as an opportunity for your application to really shine.

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Wise words about Broader Impacts

- "Helping one or two minority or female students after class hardly constitutes real distinction; being a minority applicant does not automatically fulfill this criterion. The panel looks for impact—e.g., taking science to underrepresented groups through work with public or independent schools, club activity, college- or university-based programs, or summer work."
- "Panel members look for original, self-motivated contributions by applicants to science education, such as the development of new or innovative teaching materials, significant volunteer work with science in local schools or an extraordinary level of departmental service. "Potential contributions to diversity" refer to increasing the diversity of the US population entering science or knowledgeable about it, not to increasing the diversity of the applicant's scientific or other interests (an unfortunate but recurring misunderstanding)."
- "Initiating science activity and effective advocacy for science or science education are highly valued, as is serving as a role model to attract others toward scientific interests."
- "Likewise, "contributions to community" may include organizing or working with department-based initiatives, with science museums, or with students through independent programs. Applicants and their mentors should think in terms of making a real difference in the lives of others."

(adapted from http://www.phy.davidson.edu/NSF_GRF/NSFGRFfinal.html)

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Another (great!) reason to apply for a fellowship

- If NSF or a similar prestigious federal fellowship program) recognizes you with an award OR with Honorable Mention, and if you remain within the SUNY system for your graduate study, you may be eligible for $5,000 in unrestricted funds from SUNY (for research, travel, professional development, or to augment your stipend!).

The SUNY GREAT Award

(Graduate Research Empowering and Accelerating Talent)

https://www.suny.edu/sunygreat/

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GRFP Resources

- 2022 GRFP Solicitation: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf22614&org=NSF
- To apply on FastLane: www.fastlane.nsf.gov/grfp
- NSF contact info 866-NSF-GRFP (673-4737) or info@nsfgrfp.org
- **Your SUNY campus's Fellowships Office can help!**

Campus	First Name	Email.
Albany	Shanise Kent	snkent@albany.edu
Binghamton	Kevin Boettcher	kboettch@binghamton.edu
Buffalo	M. Stewart,	mrp6@buffalo.edu.
Downstate	Mark Stewart	mark.stewart@downstate.edu
ESF	John Stella	stella@esf.edu
Stony Brook	Kathleen Flint Ehm	Kathleen.Ehm@stonybrook.edu
SUNY Poly	Krista Thompson	kthompson@sunypoly.edu
Upstate	Mark Schmitt	schmittm@upstate.edu
Buffalo State	Scott Goodman	goodmams@buffalostate.edu
Oswego	Elizabeth Droz	elizabeth.droz@oswego.edu
Potsdam	Thomas Baker	bakertn@potsdam.edu
Purchase	Gregory Taylor	gregory.taylor@purchase.edu

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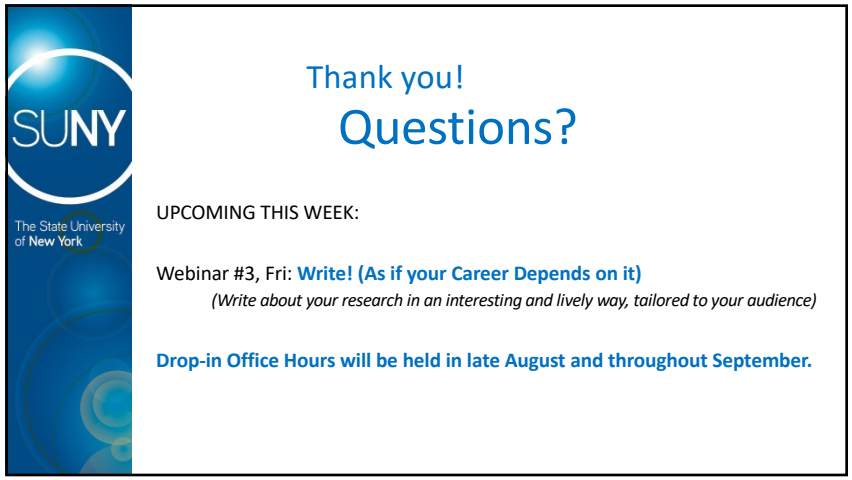
SUNY
The State University of New York
Thank you!
Questions?
UPCOMING THIS WEEK:
Webinar #3, Fri: Write! (As if your Career Depends on it)
(Write about your research in an interesting and lively way, tailored to your audience)
Drop-in Office Hours will be held in late August and throughout September.

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