



## Office of Graduate Fellowships

# Application Tips and Advice: NSF GRFP

### First Things First

This document offers tips and advice for crafting a competitive GRFP application, with a special focus on how to write strong essays for this competition. The essays, taken together, form the centerpiece of your GRFP application. In them you will be asked to: (1) Describe your preparation and motivation to conduct academic/scientific research at the graduate level and beyond; and (2) Lay out a well-conceived program of graduate research and study focused on a particular field and topic of interest.

**It is important to recognize from the outset that the aim of the Graduate Research Fellowship Program is to support promising early-career *researchers*, not projects.**

A common pitfall with the GRFP is to become overly focused on the program of research/study, or on the specific topic of inquiry, which is the subject of the second essay, the "Graduate Research Statement." But the key to success with the GRFP is not simply a "great project" or a "hot topic." Instead, think of this as an opportunity to demonstrate your ability to conceptualize, plan, and carry out a program of research that is realistic, well thought out, and makes a meaningful contribution both in terms of its intellectual merit and its broader societal impacts. *Remember that ultimately NSF is more interested in your promise as a researcher than in the specific project you propose (which in any case, may change and evolve along the way.)* Your application package as a whole – including both essays – must allow a picture of the researcher behind it to come to the fore. This involves providing insight into your personal motivations, your prior training and experience, your future goals, and your willingness to share both your knowledge and your enthusiasm for research through outreach, mentoring, education, work, and service.

### How the GRFP Application is Reviewed

NSF uses two criteria when reviewing applications. *Every component of your application must address one or both of these criteria, both explicitly and implicitly.*

- **Intellectual Merit:** The primary concerns here are: (1) that the proposed program of research be well conceived and well designed, and (2) that the research should be "important" in terms of advancing knowledge both in your field and beyond. The proposed activity should demonstrate the capacity of the researcher (that is, you!) to conceive and explore original ideas and difficult, potentially transformative concepts. You must demonstrate that you are qualified to carry out the project, and that your intended PhD program is a good match for your research interests and goals, offering sufficient access to mentorship and other resources.
- **Broader Impacts:** This refers to the impact the research will have both on the scientific/academic community and on society more broadly. How will the results be disseminated? How does the activity advance discovery and understanding while also promoting and enhancing teaching, training, and learning? How will the proposed research activities benefit society – both as a whole and in terms of broadening the participation of underrepresented groups in the creation, application, and dissemination of scientific knowledge generated from this work? How will you communicate about your work?

## **Application Review, continued:**

Applicants are advised to carefully read the most recent program solicitation (available at [www.nsfgrfp.org](http://www.nsfgrfp.org)), and to review the application web site and instructions prior to beginning work on your essays. For more information on the NSF merit review criteria see: [http://www.nsf.gov/bfa/dias/policy/merit\\_review/resources.jsp](http://www.nsf.gov/bfa/dias/policy/merit_review/resources.jsp)

The GRFP application review process unfolds as follows:

The competition is announced each year in August, and application packages are due in late October or early November. Deadlines vary by field. Check the web site for your deadline.

1. First, submitted applications are vetted for eligibility, completeness, and conformity to formatting rules and submission guidelines. Ineligible, incomplete, or non-conforming applications will be disqualified without being reviewed. All others move forward.
2. Complete application files are circulated to reviewers, who are organized into panels according to discipline/field of study. Which panel your application goes to will be determined by the primary field of study you indicated on your application, so make this selection carefully! The reviewers will read, score, and comment on applications based on the two review criteria outlined above (intellectual merit and broader impacts.) Each file will be read by at least two reviewers. After all reviewers have submitted their ratings/comments, NSF uses this information to generate a ranking list, of which approximately the top third (with some variation by field of study) will move forward in the competition.
3. In the next phase of review, the same committees that read the applications in the first phase convene in person to re-assess the top-rated applications. They will re-read the applications in this "semi-finalist" group and discuss them in detail. The committee will produce a new round of ratings and comments, which are submitted to NSF for further number crunching, and a new ranking is generated. Borderline cases are discussed, and committee members may lobby for applicants they view as particularly deserving. (Naturally, committee members recuse themselves from cases that might represent a conflict of interest.) It is at this final stage that factors such as diversity (in every sense), Congressional district, and fair representation of different sub-specialties within the field will be considered.
4. Of the final ranking, approximately the top third of applications (meaning approximately the top 1/6 of the original pool for the discipline, again with some variation by field of study) will be funded. From the remaining applications, honorable mentions will be designated. If awardees decline their offers and funds are available, NSF may offer awards to Honorable Mentions.

Announcements of award decisions are made each year on or about April 1.

Last year NSF has received about 16,500 applications to the GRFP competition across all fields of study. Of these, 2,000 – so about 12% -- were funded. The exact rate varies from one field to the next, since some fields receive many more applications than others. This may seem daunting, but actually in the world of graduate fellowships these are pretty decent odds.

Applicants who are turned down may reapply in future cycles if they still meet the eligibility requirements. It is not uncommon for students to win on a repeat try. In particular, students who receive the "Honorable Mention" designation should consider reapplying if they remain eligible.

## **How to Craft Competitive Application Essays for the GRFP**

The essays are the core of the GRFP application. First, a few basic (but crucial!) points:

- Start working on your essays early and plan on several drafts, soliciting feedback from faculty mentors and the Office of Graduate Fellowships along the way. Successful candidates typically start working on their essays during the summer prior to submission in mid-November.
- Work closely with your faculty advisor/mentor from the start. If your mentor does not have past experience with NSF funding, you may benefit from seeking out additional advice from a faculty member who does have such experience. It is to your advantage to receive advising (and if possible a letter) from an NSF-experienced researcher (in your field or a closely related one), even if that person is not your primary advisor.
- Follow NSF formatting guidelines scrupulously. Even minor departures from formatting guidelines will result in disqualification of the application. Do not rely on default settings in word processing programs – check all formatting settings for NSF compliance.
- Do not assume the essays will be read “in order.” The order in which reviewers choose to read your essays is up to them. When composing an essay, do not assume the reader has internalized (or can remember) information presented in the other essay, and do not refer the reader to the other essay. At the same time, avoid repetition – aim for essays that can stand alone, but mutually reinforce one another.
- Review panels are organized by discipline / field of study, so reviewers will come from the same general field as the applicants whose files they are reading, but will not necessarily be familiar with the subfield or topic of the proposed research. Therefore, your essays should avoid complicated technical or theoretical jargon. Instead, use the essay to demonstrate how you can communicate complicated ideas to an audience that is familiar with the major contours of your field, but not necessarily with your topic or area of specialization.
- Don't make the reader work too hard to understand your project or your goals, particularly when it comes to intellectual merit and broader impacts. Consider using subheadings or bold terms in the essays to organize and “signpost” important information.
- Before you submit your application, make sure your essays are 100% free of grammatical, typographical, and formatting errors.

Now let's look at each essay individually. Remember that each of the two essays should be carefully crafted with the review criteria (intellectual merit + broader impacts) in mind.

## Graduate Research Plan Statement

- Start with a research question that “means something” – whatever the topic, you have to convince the reader within the first paragraph that your ideas are important, your thinking creative, and your work relevant beyond the narrow confines of your subfield. How will your research contribute to science? To society?
- Write a realistic and feasible plan. Your project should be ambitious enough in scope to be “important,” but focused enough to be do-able... *by you... with your present qualifications*. When you get feedback from faculty mentors, ask them to address this specific point in their comments.
- Demonstrate that YOU are the right person to take on this project, and that you are ready to do so. This can be accomplished in two ways: First, by referencing your academic and research preparation, including any relevant skills such as language or technological proficiency. Second, by demonstrating that you know what you are doing and have a plan for getting it done. That plan includes a strong case for where you want to conduct your research, whom you will work with, and how you will proceed over the next few years.
- If there are potential deficiencies in your academic preparation, admit to them openly and offer a plan to address them. (For example, if your project requires knowledge of a foreign language or technical skill that was not taught at your previous institution, tell the reader how you plan to get up to speed.) This can help turn liabilities into assets by showing that you know what needs to be done and have a plan for action.
- Explain why the graduate program you have selected is the best place for you to complete this work. Your program does not have to be the epicenter of your field, and your mentor does not have to be “famous,” but your situation should be the right fit for you, and it should be conducive to the outcomes you are aiming for both intellectually and in terms of broader impacts / outreach. What special opportunities does your chosen graduate program offer that make it the best place for you to pursue your graduate research and training?
- Don’t prevaricate! Naturally, at the early stage of your graduate career there are a lot of unknowns. You may not be certain of what your project will look like, or even if you’ll be accepted into the program of your choice. When writing, put all of these “ifs” aside and offer the reader your vision of your graduate research plan. *Remember that with the GRFP the NSF is primarily interested in funding the researcher, and only secondarily the project*. The ability to craft a high quality research proposal and a plan for executing it is an important skill and highly predictive of your success regardless of the topic of your research. You will not be penalized if, down the road, your research path turns out differently from what you envisioned in this essay – in fact, that’s a normal and sometimes necessary outcome. But you will be judged here and now on your ability to conceptualize and articulate a meaningful and feasible research idea. Forget about the unknowns and focus on projecting a vision of yourself as a researcher.
- Don’t use a lot of specialized jargon or drone on about the literature in your field. This is not a literature review. Aim to use an engaging narrative style to situate your work within your field. Cite selectively, if at all, keeping the focus on your work and your plan.

## Personal, Relevant Background, and Future Goals Statement

- Aim to capture the reader's attention in the opening sentence / paragraph.
- Think of the "personal" element of this statement as a story that links "where you're coming from" to "where you're headed." First, shed some light on the experiences (whether personal, educational, or professional) that set you on your current path and got you interested in (or prepared you for) the research you are now proposing. Let the reader feel some of your excitement for your field of study and your proposed research. How do you see yourself contributing to research, education, and innovation in your field and in society at large?
- The "personal" component of this statement is also a chance for you to highlight any way in which you bring diversity or a fresh perspective to your field of study. While some forms of "diversity" are captured in the biodata section of the application, not all are, and reviewers are more apt to notice it in the essay. Are you a woman in a predominantly male field, or vice versa? Does your research interest arise out of a personal experience? Are you the first in your family to pursue higher education, or has your educational pathway been marked by other challenges (such as disability, economic struggle, a non-traditional student status, or an immigrant/minority background)? While this information will not compensate for weakness in other areas of the application, it may help reviewers better understand your achievement and motivations, and see your potential to work with students, colleagues, and members of the public from diverse backgrounds.
- If there are any "red flags" in your portfolio, this is your chance to address them. Did you get off to a rough start as an undergraduate, or have a tough semester that impacted your GPA? Do you have a disciplinary suspension or other mark on your record? Don't just hope they won't notice. Address potential "issues" head on, and if possible talk about how you learned and grew, or became more committed to your research as a result of these challenges.
- Describe research or other academic activities you have been involved in, focusing on the purpose of the research, your role in it (however modest), and what you learned from the experience (both academically and about yourself). If your past research experiences are in another field of study, that's OK: Focus on how these experiences turned you on to research, and how they prepared you to undertake graduate level research.
- Tie your past research activities in with the broader context of your academic studies and/or extracurricular activities – show the reader how the research arose out of a broader set of interests and concerns and shaped your academic career.
- Be sure to note outcomes of your past research or other activities – publications, posters, presentations, or any other "products" of the work, particularly if your name was credited. If the research formed the basis for a course paper, presentation, or if you communicated it to the public in any setting, mention that – it speaks to the question of broader impacts!
- Be aware that the reviewers' expectations with regard to past research experience will be adjusted to take into account the opportunities you've had access to up to now. If you're already in graduate school, the bar will be set higher than for a graduating senior. If you did your undergraduate degree at a smaller institution with fewer opportunities for undergraduate research, expectations will be adjusted accordingly – though by the same token it will reflect well on you if you have sought out / created opportunities beyond what was available through your institution. If your opportunities to participate in research have been limited, describe other activities or skills that you believe have prepared you to undertake your proposed program of research.
- Conclude by talking about your longer term career goals as a researcher.

## **Don't Go It Alone!**

Reach out to your mentors and the Office of Graduate Fellowships as early as possible. We are here to help you succeed!

Many schools offer support and advising to GRFP applicants, and the savviest applicants are those who take advantage of these services. Why not get the same advice and coaching as your competition?

Contact the Director of Graduate Fellowships, Dr. Kay Ágoston, at [kagoston@gmu.edu](mailto:kagoston@gmu.edu) or 703-993-3131.

## **NSF GRFP Web Resources**

- Several universities have developed GRFP Resource Sites with a wealth of advice and insight – most of it available to the public, not just their own students. You can link to these sites here: [http://www.nsfgrfp.org/general\\_resources/institutional\\_resources](http://www.nsfgrfp.org/general_resources/institutional_resources)
- Alex Lang, a GRFP Fellow in Physics at Boston University, has collected some useful links and tips, as well as samples of successful essays from a variety of disciplines and fields of study: <http://www.alexhunterlang.com/nsf-fellowship>
- Jennifer Wang, a GRFP alum and recent Ph.D. in Psychology from University of Washington, has collected links to other sources of advice (aimed at a wide range of different disciplines/fields) on the GRFP: <http://www.jenniferwang.org/nsf.html>
- The NSF GRFP has a Linked In Group where you can network with applicants and alumni: [http://www.linkedin.com/groups/NSF-Graduate-Research-Fellowship-2568851?home=&gid=2568851&trk=anet\\_ug\\_hm&goback=.gmp\\_2568851](http://www.linkedin.com/groups/NSF-Graduate-Research-Fellowship-2568851?home=&gid=2568851&trk=anet_ug_hm&goback=.gmp_2568851)
- The Grad Café forums feature an annual thread devoted to the GRFP (and many other nationally competitive fellowships!) in which students share, commiserate, gossip, and compare experiences throughout the application process and onward to the announcement of awards. The discussion occasionally offers good advice from successful applicants and links to useful resources, but it's also helpful for students who are simply trying to familiarize themselves with the "culture" of graduate fellowships. <http://forum.thegradcafe.com/forum/17-the-bank/>