

Applying for the NSF

I'm going to talk about 5 things today. First I'm going to be very basic and go over the four individual essays. Then I will be a little more general and discuss general approach and the advantages to applying (that you might not have thought of!).

I. Introduction

First, a little introduction to the concept of the NSF Graduate Research Fellowship.

- This is where the Fed govt has mandated money to encourage young and prolific minds to pursue science.
- You are applying for money to do science. Why do I say this? Because this is different from a college application. This is an application for money to support your research (by supporting you, they support your research). I will talk about this more later, but you should start thinking in those terms. This is essentially a grant proposal, not an application.
- They are looking for students who will contribute good research as well as to the broader aspects of the scientific community: enhancing diversity, improving science education, improving science communication and etc.

II. The first essay that I thought about: Why?!?

- This is your opportunity to show how passionate and excited you are. Tell them how you got interested, how you stay interested, what keeps you going, what gets you going. Whatever it is that comes to mind. I started this one by writing as if I were writing in my journal, and going from there. I also had my mom write down her memories of my experience, which helped me look back.
- This is also a good place to address any potential issues in your application. If you are a little bit older, you are required to write an essay explaining why it has taken you extra time to get to this point in your education. But maybe if you took a year or two off from college, you might want to address that here. If you got straight Cs for the first two years, be straightforward. Say “this is why I messed up” and “this is how I got better”
- Remember, you only have a page. Be succinct and to the point.
- A few things you could talk about: books, people, or films (as in my case) that inspired you.

III.Next: Previous Research Experience

- This will be the easiest essay to write. It's very straightforward.
- Essentially, you want to describe your project, what you did, what you learned, and how it was useful. Remember to aim to sound professional. Don't be afraid to sound technical. All of the essay readers are scientists.
- For those of you with a lot of research experience, you may have a hard time fitting it all into the two pages allotted. In this case, write about the most important, highest achieving projects you worked on, ideally with people who will be writing your references. Try to say everything you need to say about the project in a paragraph.
- For those of you who may have worked on only one or two projects, DON'T stress! This means that you have an opportunity to show off your background knowledge by writing in depth about the project(s) you worked on.
- Don't feel like you have to fill the two pages. If you've said all of the things that need to be said, be satisfied.
- Remember to properly cite references!

Now for the two essays that I (and I believe the NSF) consider to be the most important. They have evaluation sheets that are separated into two sections: academic criteria, which include GRE scores, grades, references, and etc; and broader impacts, which is how giving you a fellowship might help change the face of science, improve science education, or communication.

IV.Proposed Research Path

- So what they want to know here is not whether you have your entire career planned out, but instead that you know how to formulate:
 - a question
 - guess an answer to it
 - formulate a method to test your answer
 - explain why this is an interesting question worth investigating
- I hope knowing this makes you a little less nervous!
- They want you to show off a skill that you've been developing during your entire college career, especially during your research experiences: how to ask questions and formulate methods to seek out the answers.
- Of course, at this point you are not experts. I'm still not too good at this, some of you are probably better. Given that you are still an apprentice, this is an essay that you should probably work on with a faculty member.
- Oh no, you have to talk to faculty! Oh yes! If you're going to become a scientist, you must get comfortable approaching people and talking

science with them, asking them for help, and working with others. This is a good opportunity to start getting used to that concept.

- Okay, but who? Well, for your research experience did you have a great advisor? I assume if the answer is yes that they will be writing you a reference. In that case, absolutely ask them to help you.
- If you know an older grad student (at least 3 or 4 years of grad school)(or a lot of experience writing grant proposals) you can enlist their help.
- Any faculty member that you have a good relationship with will most likely be willing to help.
- KEEP IN MIND! This is your show. They can help, but you have to tell them exactly what you are trying to do and what you need help with. So make sure that when you approach them, you have a clear idea in your head of what you are going to ask them.
- For this essay, the best way to get started is to pick out a topic, and try to think of a question. Enlist faculty/grads/postdocs to help you with this part. Then just start writing down your proposal: the question, background information, why this is relevant, how you think it can be answered, and your conclusion.
- I assume you'll have questions, so I won't say anymore right now.
- Remember to cite references properly!!

V. Broader Impacts Criterion

- Before addressing this section I want to give you all a tiny bit of background about myself. I am a queer Black woman of Afro-Caribbean descent (my family is from Barbados and Trinidad if you are wondering), and I grew up in a low-income Latino community, El Sereno which is part of East Los Angeles. I was raised by a single mother with support from my father who lived on the East Coast for most of my life. I happened to be fortunate enough to have a parent who was aware of Los Angeles's extensive Magnet School system, and it is thanks to the opportunities there that I made it beyond the expectations of a colored youth in East LA. I had the opportunity to attend Harvard and am now a 2nd year grad student at UCSC Astronomy, studying black holes in higher dimensions.
- I understand that many of the students I am addressing today are women and students of color. This is very exciting for me! When we get to questions, feel free to ask about issues relating to minorities.
- Having said all of that about race-related issues, for those of you who are students of color, this is your essay! My essays are posted on my

website, and we will give you the link soon. I suggest you read mine to see what I mean.

- This is a chance to talk about the problems in the system – how minorities and low-income students fall through the cracks, and what you want to do to change it. I discussed how attending annual meetings of the National Society of Black Physicists (a joint meeting with the National Society of Hispanic Physicists that is happening at Disneyworld this February. see www.nsbp.org for more information) had been useful to me, as well as the changes I'd like to see in k-12 science education.
- HOWEVER. you are not limited to talking about education, race, and minority issues. I also described my interest in popular science, and how I wish to contribute to it.
- Think big. This is an essay about the things that go on in science that aren't research. Think about conferences you'd like to make happen, or there are probably a gazillion things I haven't thought of.

VI. General Stuff

- This is a great opportunity to get started practicing something you will be doing for the rest of your life. Formulating research proposals, formulating questions, talking to faculty, etc.
- This is also a great way to essentially get your grad school essays done. If you write these four essays, within all four, you will find everything you need to do your grad school essay!
- In general, you want to show the NSF why you are special. Show them what you bring to the table as a budding scientist, as a budding member of the national and maybe even international communities. This is your chance to be self-indulgent and show off!