Overview

NSF Graduate Research Fellowship Application

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Outline

• Why Fellowships?
• NSF Graduate Fellowship Application
  – A little bit of history
  – How to prepare the application
    • Intellectual Merit and Broader Impacts
Why Fellowships

• **Obvious Benefits**
  – Flexibility and more independence
  – Guaranteed funding for several years
  – Competitive stipend
  – Contribute to the lab

• **Prestige**
  – Highly selective
  – National competition
  – Long term benefits

• **Great Experience**
  – Application process is rigorous
  – Valuable training in proposal writing
  – Help to identify career goals

A little bit of History

• **National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP)**
  – Oldest graduate fellowship program supporting students in STEM (Science, Technology, Engineering and Mathematics) fields
  – Since 1952, over 50,000 fellows
  – >30 fellows have become Nobel laureates
  – >440 fellows have become members of the National Academy of Sciences
  – Higher rate for graduating with doctorate (70% within 11 years)
Graduate Research Fellowship

- Fellows must demonstrate potential for significant achievement in sciences and engineering
- Comprehensive “holistic” education plan
- 5-year award: $138,000
- Review Criteria
  – Intellectual Merit & Broader Impacts
Application Process - Fastlane

**NSF-GRFP Award**

- **Deadline (8pm, EST) –**
  - October 26, 2015
    - Life sciences, Geosciences
  - October 27, 2015
    - Engineering, Materials Research, Computer and Information Sciences/Engineering
  - October 29, 2015
    - Social Sciences, Psychology, STEM Education and Learning
  - October 30, 2015
    - Mathematical Sciences, Chemistry, Physics and Astronomy
What is the NSF Fellow Program

- **Purpose**: “to ensure the vitality and diversity of the scientific and engineering workforce in the United States”
- “Recognizes and supports outstanding graduate students who are pursuing research-based master’s and doctoral degrees”
- “..Individuals selected early in their graduate careers based on their demonstrated potential for significant achievements in science and engineering”
- “Overall strategy is to develop the globally-engaged workforce necessary to ensure the nation’s leadership in advancing science and engineering research and innovation”

Fellowship Funding

- Funded 1236 for FY2009
- Funded 2000/yr for FY2010-13 (17% success rate)
- Expected to fund 2000 fellows for FY2016

- $34,000/yr stipend for 3 years
- $12,000/yr tuition for 3 years
- Can be used during 5 years of study
- International fellowship/research funding opportunities via Global Research Opportunities Worldwide (GROW)
- Access to XSEDE cyber-infrastructure resources

- **Total Funding = $138,000**
Who Should Apply

• Eligibility
  – US citizen, national or permanent resident
  – Early career students - “Applicants must have completed no more than twelve (12) months of full-time graduate study or its equivalent as of August 1, 2015”
  – Does not already have a professional/graduate degree (e.g. Masters, except for BS/MS joint program)

• Applicant Pool
  – College Seniors
  – 1st year graduate student
  – 2nd year PhD student (3rd semester, No MS degree)
  – Applicants with “Extenuating Circumstances”
    • Interruption of graduate studies for at least 2 consecutive years before 11/15

Getting Started

• Announcement – read it carefully!!

• Start Early!!!!
  – 1-6 months lead time
  – Update Resume
  – Outline for application
  – Identify/Brief letter writers
  – Familiarize with the submission site (Field of study)
  – Follow all guidelines

• Get Copies of successful proposals

• Prepare drafts of application

• Feedback from friends and mentors
FastLane GRFP Application Module

- Personal Information
  - Education
  - Work and Other Experience
  - Electronic Transcripts
  - Proposed Field(s) of Study
  - Proposed Graduate Study and Graduate School Information
  - Names and email addresses of reference letter writers

- Personal, Relevant Background and Future Goals Statement
- Graduate Research Plan Statement

Text Requirements

- Standard 8.5" x 11" page size
- 12-point, Times New Roman font or Computer Modem (LaTeX) font
- 10-point font may be used for references, footnotes, figure captions and text within figures
- 1" margins on all sides
- single spaced or greater line spacing
Evaluation Criterion 1  
**Intellectual Merit**

- What is the *Intellectual Merit* of the proposed activity?
  - How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields?
  - How well qualified is the candidate to conduct the project?
  - Quality of prior work (research experience)?
  - To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts?
  - How well conceived and organized is the proposed activity?
  - Is there sufficient resources (where do you choose to study)?

- Reviewers will consider – “holistic analysis”
  - Strength of the academic record
  - Proposed plan of research
  - Personal/Career goals and previous research experience
  - Previous publications/presentations
  - Recommendation Letters

Evaluation Criterion 2  
**Broader Impacts**

- What are the *broader impacts* of the proposed activity?
  - How well does the activity advance discovery and understanding while benefiting society or advance desired societal outcomes?
  - How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)?
  - To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships?
  - Will the results be disseminated broadly to enhance scientific and technological understanding?
  - What may be the benefits to society?
  - *Integrate* Research with Education

- For *Broader Impacts* criterion
  - Potential of the applicant for future broader impact as indicated by personal, professional, and educational experiences and future plans
    - What were your past experiences in fulfilling the broader impact criterion
    - Personal Statement

- BOTH CRITERIA ARE IMPORTANT!!
Case Study 1: Candidate 1

- Undergraduate and graduate studies at top universities or programs
- Academic excellence
- Research experience and publications
- Good research proposal
- No integration of research with education
- No community service or leadership activities

**Will not be funded**

*Need to demonstrate Broader Impact*

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**Elements of the Application**

**Personal, Relevant Background and Future Goals (3 pages)**

- Who are you and what are your experiences?
- What makes you uniquely qualified for this fellowship?
- Which life experiences have shaped you and are instrumental for you being where you are today?
- Why are you interested in your major or grad school?
- Where do you see yourself in 10 years?
- What are your career aspirations? – Faculty??
- How will the fellowship help you achieve these goals?
- Great place to talk about your past and future broader impact-related activities
  - (community service, leadership experiences)
- Be enthusiastic and highlight your creativity
- Story!
Elements of the Application

- **Relevant Research Background**
  - Not a laundry list of your research experiences
  - Develop a cohesive theme through the description of your research activities
  - What did you do SPECIFICALLY, i.e. your role?
  - What are the skills you have learned from these experiences and how are they relevant to the proposed research?
  - How did these activities shape you as an engineer/scientist?
  - Relate RELEVANT research experience to each other based on proposed project and tie them back to personal goals and career aspirations
  - Include all publications, awards and presentations at conferences related to each experience

Case Study 2: Candidate 2

- Undergraduate and graduate studies at top universities or programs
- Academic excellence
- Lots of leadership activities, Peace Corp
- Average research proposal
- None or little research experience
- Lack of integrating research with education, i.e. NO
  - Publications
  - Presentation at conferences

*Not likely to be funded*

*Need to demonstrate research potential*
Elements of the Application

• **Research Plan (2 pages)**
  – Talk it over carefully with your advisor
  – Should be written by YOU!!
  – Include Specific Aims or Objectives/Hypotheses
  – Include the expected outcomes/alternative methods
  – Include schematics if possible
  – Include a timeline
  – Relating *Intellectual Merit* with *Broader Impact*
    • Discuss the significance and anticipated impact of your work (benefits to society)
    • Discuss how the research will be disseminated

• **Recommendations (3 letters, 11/05/15, 8pm)**
  – Choose someone who knows your WELL!!
    • Academic advisor/Course Instructor
    • Research advisor(s) – UGrad and Grad
    • Summer internship supervisor
  – *Initial email* to inform and check on their availability
  – *Follow-up email* with application material (resume)
    • More specific the letter the better
  – *Reminder email* (1 or 2 weeks before deadline)
  – Get their advice and feedback
  – Thank you note and follow-up with results
Helpful Tips for Writing

• Both essays should be connected by the ongoing story of reaching your research and education goals
  – Personal, Relevant Background and Future Goals
    • what inspired you, shaped you and helped you to set research and education goals
  – Research Plan
    • What you are doing to reach research goals & ensure broader impact
    • Selectively emphasize skills that will help you to reach research goals

• Address both intellectual merit and broader impacts in both essays, integrate research with education

• Give concrete examples of your academic and non-academic experiences and be specific about what you have learned from each

• Know your audience
  – Write clearly and succinctly

NSF Graduate Research Fellowship

• Contacts - info@nsfgrfp.org (866) 673-4737
  – Dr. Gisele Muller-Parker

• Graduate Research Fellowship (GRF) Operations Center
  – Phone: 866-673-4737
  – email: info@nsfgrfp.org
Summary

- Apply for fellowships: *win-win* situation
- Start Early and know your audience
- Show your excitement and enthusiasm!!
- Follow Instructions and Review Criteria
- Get help from others (Research Advisor)
- *If not successful, RE-APPLY!!*
  - 3 chances if you are a senior
  - Address feedback from reviewers
  - Advice from mentors/letter writers
- Enjoy the experience!!