The NSF Graduate Research Fellowship Program

University of California Fellowship Workshop
July, 2008
The National Science Foundation

Federal agency created in 1950 to “to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense”

>$6 billion annual budget for research and education in Science, Technology, Engineering and Math (STEM) disciplines - all fields but clinical biomedical (NIH)

Annually awards about 10,000 research grants, **2700 graduate fellowships** (direct to student), 1500 graduate trainees (e.g., IGERT, GK-12), and 30,000 graduate research assistantships (via grants to Principal Investigators)
NSF Graduate Research Fellowship

Initiated in 1952 – oldest NSF program

>43,000 students including FY2008 awards

Currently ca. 3300 fellows, ca. 2700 on “tenure”
(taking stipend and cost of education)

Very successful students - high rates of PhD completion, shorter time to degree completion, high placement in faculty positions, high levels of research productivity, >20 Nobel laureates, etc.
The NSF Graduate Research Fellowship

Three years of support over a five year period
Annual stipend of $30,000 - cost of living
Tuition support of $10,500 - cost of education allowance paid to institution - remainder normally covered by university
$1,000 one-time international travel allowance
Cyberinfrastructure access via the TeraGrid
The NSF Graduate Research Fellowship

Portable to graduate institutions in US or abroad

Flexible - your choice of project, advisor, department

No service requirement (national lab or military)

Typically awarded to ca. 1,000 students per year

Honorable Mention for meritorious applications

(includes Cyberinfrastructure resources)

Specific programs to support underrepresented populations
GRF Eligibility Criteria

Academic level

Level 1 - Seniors, baccalaureates with no graduate study
Level 2 - First-year graduate students
Level 3 - Second-year grad students (12 months of graduate study or less by Aug 31 prior to submission)
Level 4 - >12 months graduate study - change in field

Citizenship

U.S. Citizen, National or Permanent Resident

Discipline

Research-based Masters or PhD in NSF-Supported Field
NSF-Supported Disciplines

Chemistry
Computer and Information Science and Engineering
Engineering
Geosciences
Life Sciences
Mathematical Sciences
Physics and Astronomy
Psychology (non-clinical)
Social Sciences (non-clinical)
Some Areas Not Supported by the GRF

Clinical work  
Counseling  
Business  
Management  
Social work  
Practice-oriented professional degree programs  
Joint science-professional degree programs (MD/PhD and JD/PhD)  
Medical, dental, law, or public health programs
Intellectual Merit Criterion

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.) 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 access to resources?

Academic performance & background (grades, curricula, GRE)
Awards/honors
Communication skills
Research experience
International experience
Independence/creativity
Publications/presentations
Research plan
Choice of institution
References
Broader Impacts Criterion

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? 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 of the proposed activity to society?

Prior accomplishments
Community outreach
Impact on society and connectivity
Future plans
Leadership potential
Individual experiences
Integration of research and education
Potential to communicate to diverse audiences
Application Materials - GRFP FastLane

Personal Statement Essay (2 pgs incl figs)

Previous Research Experience Essay (2 pgs incl figs)

Proposed Plan of Research Essay (2 pgs incl figs)

Completed Graduate Study Essay (For Level 4)

Three Letters of Reference

Transcripts

GRE Scores (Optional but Highly Recommended)
Personal Essay

Two pages—often the hardest thing to write

Make certain to discuss:
- Your motivation for research and particular choice of field
- Examples of leadership skills and unique characteristics you bring (avoid arrogance)
- How the GRFP will assist you with career goals

Provides opportunity for evaluators to see you as a person

Opportunity to respond to broader impact merit criterion
Previous Research Experience Essay

Emphasize experience relevant to your proposal but include all examples of “research”, even if not in field

List experience with hypothesis formulation and testing, experimental design, data management and analysis, interpretation of results, dissemination of findings

Highlight what you did (independence) but discuss collaborators (teamwork) and leadership

List any publications, posters, presentations, prizes, awards, grants, special recognition, etc.
Proposed Research Essay

Introduce general theory or area of study and importance - a few references will demonstrate your understanding of field

Describe your motivation to go into that area

Discuss your plans to prepare yourself for that field of study - mention school(s), degree programs, potential advisor, etc.

Spell out specific details of your research and study plan but avoid jargon, specific experimental details, etc.

Comment on the broader impacts of your activities

Let the reader know of your career plans, even if tentative

Demonstrate flexibility ("plan B")
Letters of Reference

Three required - should know you as scientist and person

Will compare you with NSF Graduate Research Fellows & other successful students they have known based on: potential to make unique contributions to discipline; ability to conduct original research; leadership potential; productive member of scientific community; originality of plan of study

Will state their role in assisting with the application

Provide referees sufficient time; share application materials with them; ask for advice

Track letters on FastLane - remind referees about deadline
Panel Review of Applications

Evaluated by Level but no limits on numbers from each Level.
Long term success: Level 1>Level 2>Level 3>Level 4.

Panelists are experts in general field, but *may not* be experts in your specific research specialty - avoid jargon

Evaluated by 2 panelists, additional review for higher ranked applications - scored, then ranked by average of scores

Panelists complete rating sheet regarding intellectual merit and broader impacts criteria highlighting strengths and areas for improvement - provided to eligible applicants

NSF uses ranking and other factors (e.g., URM) to determine awardees and recipients of honorable mention
Insight from a panelist:

“Top Five” Reasons Applicants Fail

1) Poor broader impacts
2) Chose prestige school vs. matched research school
3) Inappropriate or uninformative reference reports
4) Weak personal statement
5) Poor support from proposed mentor

Hint: search the internet for information but be prudent
NSF GRF description, solicitation (August), and links:

http://www.nsf.gov/grfp/

Online Application, User Guides, and Official Announcements:

http://www.fastlane.nsf.gov/grfp/

Operations Center, Outreach, Helpdesk:

http://www.nsfgrfp.org

866-NSF-GRFP (673-4737) help@nsfgrfp.org