

Applying for the NSF Graduate Research Fellowship (GRF) in 2016

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READ THE GRF PROGRAM GUIDELINES!

<http://www.nsf.gov/pubs/2016/nsf16588/nsf16588.pdf>

VISIT THE GRFP WEBSITE

<https://www.nsfgrfp.org/>

GRF consists of three years of support during a five-year fellowship period (**\$138,000**). Each year, NSF provides a **stipend of \$34,000** to the Fellow and a **cost-of-education allowance of \$12,000** to the graduate degree-granting institution for each Fellow who uses the support in a fellowship year.

**ALL APPLICATIONS MUST BE UPLOADED TO FASTLANE
BY 5:00 PM LOCAL TIME (e.g., MT)**

SUBJECT AREAS	GRF APPLICATION DUE DATE
GEOSCIENCES; LIFE SCIENCES	October 24, 2016
COMPUTER AND INFORMATION SCIENCE AND ENGINEERING; ENGINEERING; MATERIALS RESEARCH	October 25, 2016
PSYCHOLOGY; SOCIAL SCIENCES; STEM EDUCATION AND LEARNING	October 27, 2016
CHEMISTRY; MATHEMATICAL SCIENCES; PHYSICS AND ASTRONOMY	October 28, 2016

DAY/TIME DEADLINES ARE RIGID

ELIGIBILITY INFORMATION

- Fellowship applications **must be submitted by the prospective Fellow via FastLane.**
- Applicants must first register with FastLane: <https://www.fastlane.nsf.gov/fastlane.jsp> prior to submitting an application. (**REGISTER EARLY** EVEN IF YOU AREN'T SURE ABOUT APPLYING)
- **Confirmation of acceptance** in a graduate degree program in science or engineering is required at the time of Fellowship acceptance, no later than **May 1, 2017.**
- **Prospective Fellows must enroll** in a university, college, or non-profit academic institution of higher education accredited in, and having a campus located in, the United States, its territories, or possessions, or the Commonwealth of Puerto Rico that offers advanced degrees in STEM or STEM education **no later than fall 2017.**

- All Fellows from the **date of Acceptance through Completion or Termination of the Fellowship must be affiliated with a graduate degree-granting institution** accredited in, and having a campus located in, the United States, its territories, or possessions, or the Commonwealth of Puerto Rico.
- NSF especially encourages women, members of underrepresented minority groups, persons with disabilities, and veterans to apply. **NSF also encourages undergraduate seniors to apply.**

APPLICANT ELIGIBILITY

1. CITIZENSHIP

- Applicants must be **United States citizens, nationals, or permanent residents** of the United States by the application deadline.
- The term "national" designates a native resident of a commonwealth or territory of the United States, such as American Samoa, Guam, Puerto Rico, United States Virgin Islands, or the Northern Mariana Islands. It does not refer to a citizen of another country who has applied for United States citizenship and who has not received U.S. citizenship by the application deadline.

2. DEGREE REQUIREMENTS

Applicants are eligible to apply who are: a) not enrolled in graduate school and will have adequate preparation to attend graduate school in fall 2017; or b) have not completed more than 12 months of a graduate program in a supported field of study (see Appendix).

a) Not Currently Enrolled in Graduate School:

- **No prior graduate school enrollment**
- **Undergraduate students** typically apply prior to starting a graduate program which is usually in the fall of their senior year or the fall of the academic year that they anticipate receiving a bachelor's degree.
- At the time of application, undergraduate student applicants are expected to be **on track to receive a bachelor's degree in a science or engineering field prior to fall 2017** to demonstrate adequate preparation to begin graduate study and research by fall 2017.
- **Bachelor's degree holders without any graduate study** can apply any time after earning their degree.

b. With prior graduate school enrollment

As a general rule, applicants must not have completed **more than 12 months of full-time graduate study or its equivalent** as defined by the universities attended as of August 1, 2016.

- All graduate, post-baccalaureate and professional study is counted towards the allowed 12 months of graduate study, including all full-time and part-time master's and doctoral degree programs, and non-degree graduate-level and professional coursework.
- Applicants who have completed more than twelve months of graduate study or have earned a previous graduate or professional degree are **eligible only if they have had an interruption in graduate study of at least two consecutive years prior to November 1, 2016**. To be eligible, applicants must have completed no additional graduate study by August 1, 2016. Applicants must address the reasons for the interruption in graduate study in the Personal, Relevant Background and Future Goals Statement.
- **Applicants in joint BS/MS programs are eligible** to apply prior to completion of any further graduate study. Joint baccalaureate-master's programs are those where an institution offers students admission to both an undergraduate and graduate degree program concurrently. Pursuing separate undergraduate and master's degrees at the same institution does not constitute a joint baccalaureate-master's program. Completion of any graduate study outside of the joint program disqualifies an applicant unless the graduate coursework is required to establish or maintain credentials in a profession such as teaching; such coursework is not included in the 12-month limit.

NEW RESTRICTION

- INTENT OF RESTRICTION
 - **EARLY CAREER** RECRUIT/RETAIN RESEARCHERS
 - **STREAMLINE REVIEW** PROCESS REQUIREMENTS
- ALL ENROLLED GRADUATE STUDENTS **MAY APPLY ONLY ONCE** for the GRF
 - Either at the beginning of the first OR the second year of graduate study (12 month restriction still applies)
- **ONLY EXCEPTION**: if you applied but were not awarded in 2015, you may apply a second time in 2016
- **Applications not reviewed or withdrawn by November 15, 2016 do not count** toward one-application limit

GRF PROGRAM DESCRIPTION

- The Graduate Research Fellowship Program (GRFP) awards Fellowships for graduate study leading to **research-based master's and doctoral degrees in STEM or in STEM education**. The Fields of Study listed in the Appendix are used to place applications in the most appropriate review panel and to track the disciplinary progress of Fellows and their career outcomes. Applicants who meet the degree eligibility criteria may select "other" if their Field of Study is not represented in the list **(1 application → 1 program)**
- GRFP supports individuals proposing a **comprehensive holistic plan for graduate education that takes into account individual interests and competencies**. **A holistic plan describes past experiences, attributes, and academic achievements and, when considered in combination, shows how the applicant has demonstrated potential for significant research achievements in STEM or in STEM education.** Thus, an applicant must provide a detailed profile of her or his relevant educational and research experiences and plans for graduate education in such a way as to demonstrate this **potential for significant achievements.**

The following programs, areas of graduate study, and research are **INELIGIBLE** for GRF support:

- Individuals are not eligible to apply if they will be enrolled in a **practice-oriented professional degree program** such as medical, dental, law, and public health at the start of the fellowship. Examples of typically ineligible degree programs include MBA, MPH, MSW, JD, MD, and DDS. Joint or combined professional degree-science programs (e.g., MD/PhD or JD/PhD) and dual professional degree-science programs are also not eligible.
- Individuals are not eligible to apply if they will be enrolled in an area of graduate **study focused on clinical practice, for example, counseling, social work, as well as patient-oriented research, epidemiological and behavioral studies, outcomes research and health services research.** For example, clinical study that is ineligible includes investigations to provide evidence leading to a scientific basis for consideration of a change in health policy or standard of care, and includes pharmacologic, non-pharmacologic, and behavioral interventions for disease prevention, prophylaxis, diagnosis, or therapy. Graduate study focused on community and other population-based medical intervention trials are also ineligible.
- Individuals are not eligible to apply for support of **biomedical research with disease-related goals**, including etiology, diagnosis or treatment of physical or mental disease, abnormality, or malfunction in human beings and animals. Animal models of such conditions or the development or testing of drugs or other procedures for their treatment also are not eligible for support. There are **areas of bioengineering research in biology and medicine that are eligible. These are research in bioengineering to aid persons with disabilities and research on diagnosis or treatment of human disease provided it applies engineering principles to problems in biology and medicine while primarily advancing engineering knowledge.**

FastLane GRF APPLICATION MODULE

COMPONENTS

1. PERSONAL INFORMATION:

- a) Education, Work and Other Experience
- b) Electronic Transcripts

2. PERSONAL, RELEVANT BACKGROUND, AND FUTURE GOALS STATEMENT

3. GRADUATE RESEARCH PLAN STATEMENT

4. NAMES AND EMAIL ADDRESSES OF THREE* REFERENCE LETTER WRITERS (at least two must be received for review)

* Five may be submitted, but only top three letter are considered

FORMAT & LENGTH LIMITATIONS

- **Standard letter size (8.5 x 11”), 1” margins, single spaced or larger**
- **12-pt Times New Roman or LaTeX Computer Modern font**
 - 10-pt okay for refs, footnotes, figure captions & text
- **The MAXIMUM LENGTH of the Personal, Relevant Background and Future Goals Statement is three pages.**
- **The MAXIMUM LENGTH of the Graduate Research Plan Statement is two pages.** These page limits include all references, citations, charts, figures, images, and lists of publications and presentations.

INTELLECTUAL MERIT & BROADER IMPACTS REVIEW CRITERIA

- Applicants **MUST INCLUDE SEPARATED STATEMENTS ON INTELLECTUAL MERIT AND BROADER IMPACTS** in their written statements in order to provide reviewers with the information necessary to evaluate the application with respect to both Criteria as detailed below.
- Applicants **SHOULD INCLUDE HEADINGS** for **Intellectual Merit and Broader Impacts** in their **statements.**

- **INTELLECTUAL MERIT** encompasses the potential to **advance knowledge**
- **BROADER IMPACTS** encompasses the potential to **benefit society and contribute to achievement of SPECIFIC, desired societal outcomes**

BOTH CATEGORIES evaluated by criteria below:

- To what extent do the proposed activities suggest and explore **creative, original, or potentially transformative concepts?**
- Is the plan of activities **well-reasoned, well-organized and based on sound rationale?** Does the plan incorporate a **mechanism to assess success?**
- **How well qualified is the individual,** team, and/or organization to conduct the proposed activities?
- **Are adequate resources available to the PI** (at home institution or partners)?

ANOTHER NOTE ON BROADER IMPACTS

- **Broader impacts may be accomplished 1) through the research itself, 2) through the activities that are directly related to specific research projects, or 3) through activities that are supported by, but are complementary to, the project.**
- **NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes including, but not limited to:**
 - **FULL PARTICIPATION** of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM);
 - **improved STEM education** and educator development at any level;
 - **increased public scientific literacy and public engagement** with science and technology;
 - **improved well-being of individuals** in society;
 - development of a **diverse, globally competitive STEM workforce**;
 - **increased partnerships between academia, industry, and others**;
 - **improved national security**;
 - **increased economic competitiveness** of the US; and
 - **enhanced infrastructure for research and education**

REFERENCE LETTERS

- Applications **SHOULD HAVE 3 REFERENCE LETTERS** submitted through FastLane by the reference letter deadline: **5 PM EASTERN TIME, NOV. 3, 2016 (NO LATE LETTERS WILL BE CONSIDERED).** **TWO MUST BE SUBMITTED** in order to be eligible for review. UP TO five reference letters may be requested, **BUT ONLY THE TOP 3 (in order of nomination) will be considered.**
- Applicants must enter an appropriate email address for each reference writer into the FastLane GRFP Application Module. An exact email address is crucial to matching the reference writer and the applicant in the FastLane GRFP Application Module.
- Applicants should ask reference writers well in advance of the reference writer deadline, and it is recommended they provide copies of their application materials to the writers.

- The REFERENCE LETTER should **address the NSF Merit Review Criteria of Intellectual Merit and Broader Impacts**. **CONTENT** should include
 - details explaining the nature of the relationship to the applicant,
 - comments on the applicant's potential for contributing to a globally-engaged United States science and engineering workforce,
 - statements about the applicant's academic potential and prior research experiences (re: PERSONAL STATEMENT),
 - statements about the applicant's proposed research (re: RESEARCH PLAN), and
 - any other information to aid review panels in evaluating the application according to the NSF Merit Review Criteria.
- **FORMAT & LENGTH LIMITS:**
 - **FORMAT SAME AS APPLICANT'S STATEMENTS**
 - **MAXIMUM LENGTH IS TWO (2) PAGES, SINGLE SPACED**

FAQs

- ***How much is done on your own and how much help should you expect from advisors?*** Faculty advisors serve two roles: expert feedback on your proposed research, and writing reference letters that contain their evaluation of your attributes and the intellectual merit of the proposal. Do not submit an application that looks very similar to your advisor's research, as described in his/her reference letter. That said, it is expected that you have discussed your proposal with academic advisors who help you refine your ideas. Get to know your references. As a new graduate student, you may not know them well, but you have over a month to spend several sessions with them. Discuss and REFINE your ideas with faculty and peers. **ITERATE** new written versions. ***Expect guidance from advisors – it is not hard to read a 5-page application, even in multiple drafts.***

- ***What do you, the applicant, contribute?*** A **narrative** framework for the research proposal. GRF's are awarded based on the **student's potential** for short- and long-term research contributions. Demonstrating how you develop an idea will be a big component of the review process. Remember, proposed research is not completed research. ***Acknowledge uncertainties and describe challenges to be met – preferable with curiosity and excitement.***
- ***Will reviewers be experts in my area?*** Probably not. They will be mostly, but not all, academics and professionals who are interested in both research and education. They will have general knowledge of the broad subject areas, e.g., civil engineering, electrical engineering, in panels, but may not be specialists in your research topic, e.g., earthquake engineering, groundwater transport. Therefore, ***do not get bogged down*** in specific details of technique. ***AVOID jargon or undefined acronyms.***
- ***How do I cope with 2-page research description limit?*** Use the personal statement to add some background in your topic, including broader impacts, and even describing how you became interested in the topic in the narrative can demonstrate scientific/technical knowledge.

- ***Should I explicitly include Intellectual Merit and Broader Impacts headings in the research description?*** YES, and clearly label them.
- ***What about citations?*** Use them judiciously. The application is not a literature review. Cite enough to show how your research will advance the state of knowledge.
- ***What happens in the review?*** Reviews are conducted on-line, with each reviewer on a panel accessing a large number of proposals and reviewing them quickly in the “first cut.” **Review is a two-step process**, with 60-70% of the proposals eliminated quickly – so make a good first impression (no typos; excellent organization; clear writing; present research description as hypothesis driven, if possible, or present as questions to be answered and knowledge gaps to be bridged; compelling description of how your interests developed). More detailed review of the remaining group is done in a second round. Overall funding rate is ~10% - NSF expects to award ~2,000 GRF's in 2017, so you are competing with over 15,000 other applicants.

- ***What resources are available?***
 - Office of Contracts and Grants – registration in FastLane, questions about format, eligibility, etc.
<http://www.colorado.edu/ocg/fellowships>
 - NSF GRF program <https://www.nsfgrfp.org>
 - Current awardees, faculty advisors, and peers

**NATIONAL SCIENCE
FOUNDATION GRADUATE
RESEARCH FELLOWSHIPS**

Fields of Study

Note: Applications are reviewed in panels based on the selection of a primary Field of Study. Selection of a primary Field of Study determines the application deadline and the panel that will review the application. Applicants may select "other" if their Field of Study is not represented in the list under each Primary Field of Study. The "other" field of study category should only be selected by applicants if the proposed field of study is not covered by one of the following fields, and should not be used to designate a field of study that is more specific than the fields listed.

CHEMISTRY

Chemical Catalysis
Chemical Measurement and Imaging
Chemical Structure, Dynamics, and Mechanism
Chemical Synthesis
Chemical Theory, Models and Computational Methods
Chemistry of Life Processes
Environmental Chemical Systems
Macromolecular, Supramolecular, and Nanochemistry
Sustainable Chemistry
Chemistry, other (specify)

**COMPUTER AND INFORMATION
SCIENCE AND ENGINEERING
(CISE)**

Algorithms and Theoretical Foundations
Bioinformatics and other Informatics
Communication and Information

Theory
Computational Science and Engineering
Computer Architecture
Computer Networks
Computer Security and Privacy
Computer Systems and Embedded Systems
Databases
Data Mining and Information Retrieval
Formal Methods, Verification, and Programming Languages
Graphics and Visualization
Human Computer Interaction
Machine Learning
Natural Language Processing
Robotics and Computer Vision
Software Engineering
CISE, other (specify)

ENGINEERING

Aeronautical and Aerospace
Bioengineering
Biomedical
Chemical Engineering
Civil Engineering
Computer Engineering
Electrical and Electronic
Energy
Environmental
Industrial Engineering & Operations Research
Materials
Mechanical
Nuclear
Ocean
Optical Engineering
Polymer
Systems Engineering
Engineering, other (specify)

GEOSCIENCES

Atmospheric Chemistry
Aeronomy
Biogeochemistry
Biological Oceanography
Chemical Oceanography
Climate and Large-Scale
Atmospheric Dynamics
Geobiology
Geochemistry
Geomorphology
Geodynamics
Geophysics
Glaciology
Hydrology
Magnetospheric Physics
Marine Biology
Marine Geology and Geophysics
Paleoclimate
Paleontology and Paleobiology
Petrology
Physical and Dynamic Meteorology
Physical Oceanography
Sedimentary Geology
Solar Physics
Tectonics
Geosciences, other (specify)

LIFE SCIENCES

Biochemistry
Bioinformatics and Computational
Biology
Biophysics
Cell Biology
Developmental Biology
Ecology
Environmental Biology
Evolutionary Biology
Genetics
Genomics
Microbial Biology
Neurosciences
Organismal Biology

Physiology
Proteomics
Structural Biology
Systematics and Biodiversity
Systems and Molecular Biology
Life Sciences, other (specify)

MATERIALS RESEARCH

Biomaterials
Ceramics
Chemistry of materials
Electronic materials
Materials theory
Metallic materials
Photonic materials
Physics of materials
Polymers
Materials Research, other (specify)

MATHEMATICAL SCIENCES

Algebra, Number Theory, and
Combinatorics
Analysis
Applied Mathematics
Biostatistics
Computational and Data-enabled
Science
Computational Mathematics
Computational Statistics
Geometric Analysis
Logic or Foundations of Mathematics
Mathematical Biology
Probability
Statistics
Topology
Mathematics, other (specify)

PHYSICS AND ASTRONOMY

Astronomy and Astrophysics
Atomic, Molecular and Optical
Physics
Condensed Matter Physics
Nuclear

Particle Physics
Physics of Living Systems
Plasma
Solid State
Theoretical Physics
Physics, other (specify)

PSYCHOLOGY

Cognitive
Cognitive Neuroscience
Computational Psychology
Developmental
Experimental or Comparative
Industrial/Organizational
Neuropsychology
Perception and Psychophysics
Personality and Individual
Differences
Physiological
Psycholinguistics
Quantitative
Social
Psychology, other (specify)

SOCIAL SCIENCES

Archaeology
Biological Anthropology
Cultural Anthropology
Anthropology, other
Communications
Decision Making and Risk analysis
Economics (except Business
Administration)
Geography
History and Philosophy of Science
International Relations
Law and Social Science
Linguistics
Linguistic Anthropology
Medical Anthropology
Political Science
Public Policy
Science Policy
Sociology (except Social Work)

Urban and Regional Planning
Social Sciences, other (specify)

STEM EDUCATION AND LEARNING RESEARCH

Engineering Education
Mathematics Education
Science Education
Technology Education
STEM Education and Learning
Research, other (specify)