



Overview of NSF Graduate Research Fellowship (GRFP) & Math Sci. Postdoc Research Fellowship (MSPRF) Programs

September 14, 2020

Huixia Judy Wang
Program Director
Division of Mathematical Sciences
National Science Foundation

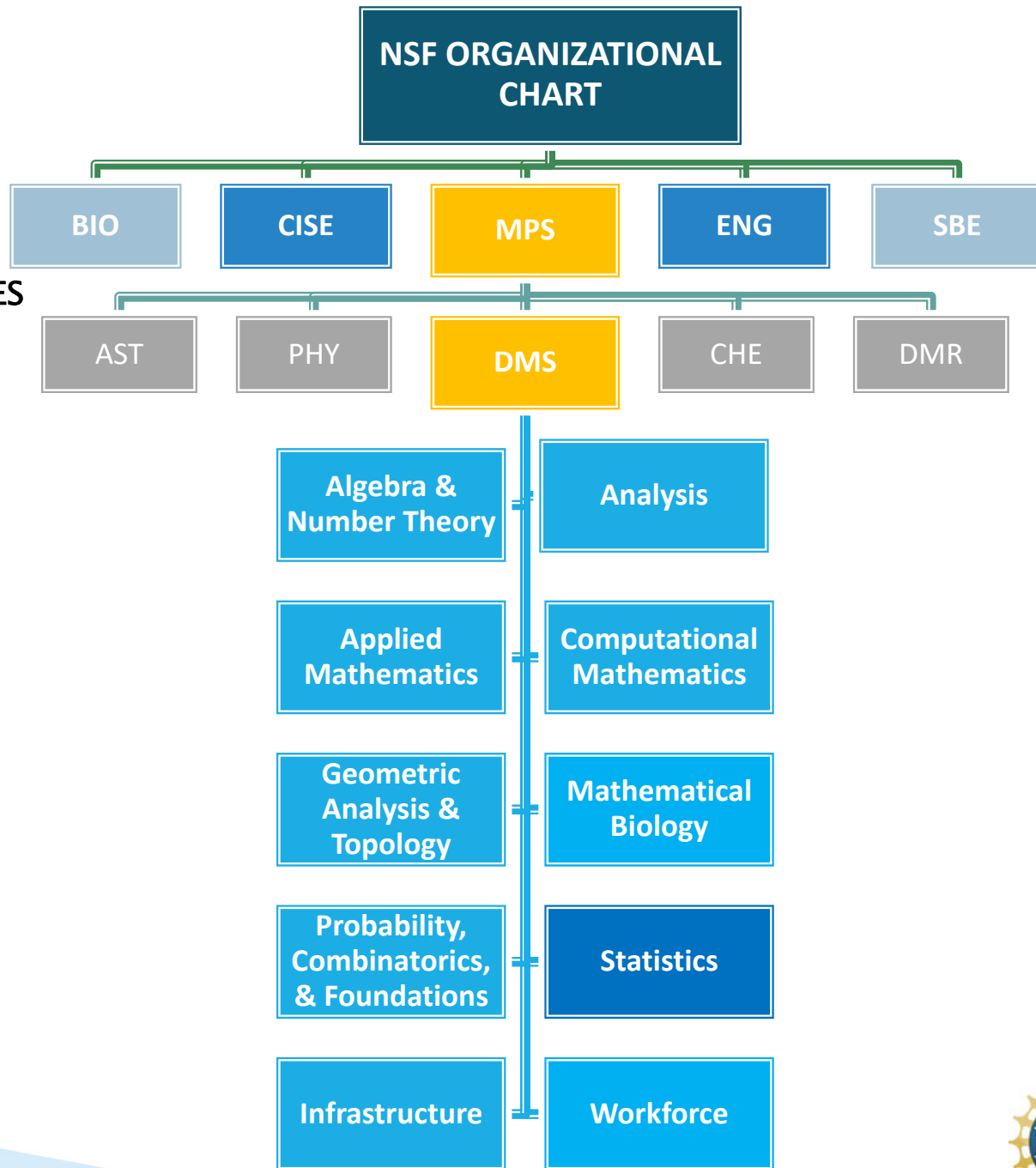
DIRECTORATE

MPS-MATHEMATICAL
AND PHYSICAL SCIENCES

DIVISION

DMS-DIVISION OF
MATHEMATICAL
SCIENCES

PROGRAM



Graduate Research Fellowship Program (GRFP)

- ▶ Recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics disciplines who are **pursuing research-based Master's and doctoral degrees** at accredited United States institutions.
- ▶ Goals of the program
 - Support early-career individuals with the demonstrated potential to be high achieving scientists and engineers
 - Broaden participation in STEM of underrepresented groups: women, minority, persons with disabilities and veterans.
- ▶ 3 years of support: annual stipend of \$34,000 along with a \$12,000 cost of education allowance for tuition and fees (paid to the institution).
- ▶ <https://www.nsfgrfp.org/>

National Science Foundation



GRFP Eligibility & Requirements

- ▶ Must be a US Citizen, National or Permanent Resident
- ▶ Eligible applicants
 - 1) as undergraduates or bachelor's degree holders who have never enrolled in a degree-granting graduate program, and who will be prepared to attend graduate school in fall of the award year;
 - or 2) as graduate students who have not completed more than one academic year of a graduate program in an eligible field of study

See more specific eligibility in the [solicitation](#)

National Science Foundation



Number of Times One May Apply

- ▶ Undergraduate seniors and bachelor's degree holders: no limit before enrolling in a grad program
- ▶ Graduate students: ≤ 1 (first year or beginning of the second year)
- ▶ Joint degree holders: see the [solicitation](#) for detailed restrictions
- ▶ Only one application per annual competition



GRFP Fields of Study–Mathematical Sciences

Mathematical Sciences 1	Mathematical Sciences 2
Algebra, Number Theory, and Combinatorics	Applied Mathematics
Analysis	Biostatistics
Geometric Analysis	Computational and Data-enabled Science
Logic or Foundations of Mathematics	Computational Mathematics
Probability	Computational Statistics
Statistics	Mathematical Biology
Topology	

New & high priority areas in FY21: **Artificial Intelligence, Quantum Information Science, and Computationally Intensive Research**

National Science Foundation



Application Components

- ▶ Personal, Relevant Background, Future Goals Statement (3 pages): IM & BI
- ▶ Graduate Research Plan Statement (2 pages): IM & BI
- ▶ ≥ 2 reference letters, 3 strongly encouraged (provide 3–5 references)
- ▶ Academic Transcripts
- ▶ Find Experienced GRFP Resource Persons: go to the GRF Program Webpage



Reference Letters

- At least one must from a teacher/educator in your minor area of study.
- Give the faculty lead time to write
- Indicate clearly the deadline, where to upload, and letter requirements to the faculty (2–page limit etc.)
- Addresses both IM and BI
- Create a list of personal and academic achievements
- Letter should explain the relationship, comment on the applicant's **potential for contributing to a globally-engaged United States S&E workforce**, the applicant's **academic potential and prior research experiences**, statements about the applicant's proposed research



Merit Review–Intellectual Merit

- **IM Criterion:** the **potential** of the applicant to **advance knowledge** based on a holistic analysis of the complete application, including the Personal, Relevant Background, and Future Goals Statement, Graduate Research Plan Statement, **strength of the academic record, description of previous research experience or publication/presentations**, and references.
- Holistic review is a flexible, individualized way of assessing an applicant's interests and competencies by which balanced consideration is given to experiences, attributes, and academic achievements and, when considered in combination, how the applicant has demonstrated **potential for significant research achievements in STEM and STEM education**.



Merit Review—Broader Impacts

- BI Criterion: the **potential** of the applicant to **benefit society** and contribute to the achievement of **specific, desired societal outcomes** based on a holistic analysis of the complete application, including by **personal experiences, professional experiences, educational experiences and future plans.**



GRFP—Final Remarks

- ▶ FY21: target 1600 awards
- ▶ Write for diverse group of reviewers
- ▶ Deadline: 10/22/2020 (MS)
- ▶ Reference letters due: 10/30/2020
- ▶ **Read the solicitation carefully!**
Applications failing to comply may be RWR.

<https://www.nsf.gov/pubs/2020/nsf20587/nsf20587.htm>



Mathematical Sciences Postdoctoral Research Fellowships (MSPRF)

- Initiated by DMS in 1979
- Aims to support future leaders in mathematics and statistics by facilitating their participation in postdoctoral research environments that will have maximal impact on their future scientific development
- Support research in areas of mathematics and statistics, including applications to other disciplines
- Solicitation:
<https://www.nsf.gov/pubs/2016/nsf16558/nsf16558.pdf>
- **Deadline: October 21, 2020**

National Science Foundation



Two Options & Eligibility

- Two options for awardees: Research Fellowship and Research Instructorship
- \$150k support (\$120k stipend + allowance, health insurance) provided for
 - 2 years of full-time research (Research Fellowship)
 - Or one year of full-time research and two years of half-time research supplemented by teaching (Research Instructorship)
- Eligibility:
 - Must be a US Citizen, National or Permanent Resident
 - May not have held the doctoral degree more than 2 years as of January 1 of the year of the award



MSPRF: Application Components

- ▶ Project Summary (1 page limit)
- ▶ Project Description (5 page limit)
- ▶ Reference cited (no page limit)
- ▶ Biosketch (2 page limit)
- ▶ Supplementary Document (Required)
 - The sponsoring scientist statement (3 page limit)
 - Data management plan
 - Plan for long-term absence (if applicable; 1 page limit)
- ▶ 3 or 4 reference letters: 1 from the doctoral advisor; others from scientists who know the applicant and applicant's research well.



Instructions for Sponsoring Scientists

- ▶ Statement (≤ 3 pages): uploaded by the applicant
 - ▶ **Not a recommendation letter.** May describe the applicant's research achievements and future research goals and how they align with those of the sponsoring scientist, it may not include language evaluating the applicant or the applicant's research program.
 - ▶ Statement should address
 - the expected **availability** of the sponsoring scientist for consultation during the requested tenure period;
 - the **role** that the sponsoring scientist will play in the professional development of the Fellow;
 - the **opportunities for training and research** at the host institution that will be of particular benefit to the Fellow;
 - the **appropriateness** of the match between the sponsoring scientist and the Fellow; and
 - how the sponsoring scientist expects to benefit from the experience of supervising the Fellow.
- 

Merit Review Criteria

- ▶ Intellectual Merit
- ▶ Broader Impacts
- ▶ Solicitation-specific:
 - **ability and potential** (past research and reference);
 - **suitability and availability of the sponsoring scientist** & other colleagues & resources from the host institution;
 - **likely impact** of the sponsoring scientist and the host institution on the scientific development of the applicant;
 - **scientific quality** of the research likely to emerge;
 - the potential of the applicant's contributions to the Foundation's **education and human resource goals**.



MSPRF–Final Remarks

- ▶ Over 200 applications and about 40 awards each year
- ▶ Three external disciplinary expert panels
- ▶ Project Description: keep **both specialists and non-specialists in mind**
- ▶ Give reference letter writers and sponsoring scientist sufficient lead time
- ▶ Provide clear instructions
- ▶ **Read the solicitation carefully!**

<https://www.nsf.gov/pubs/2016/nsf16558/nsf16558.htm>



NSF Mathematical Sciences Graduate Internship Program (MSGI)

- ▶ For mathematical sciences doctoral students to participate in internships at federal national laboratories, industry and other approved facilities
- ▶ Administered by the Oak Ridge Institute for Science and Education (ORISE) under an agreement between NSF and the U.S. Department of Energy (DOE)
- ▶ Support: stipend \$1,200/week for 10 weeks + travel reimbursement
- ▶ 40 internships/Yr, 15 hosting sites
- ▶ <https://orise.ornl.gov/nsf-msgi>
- ▶ Application deadline: TBA
- ▶ US citizenship not required

National Science Foundation



QUESTIONS?

Huixia Judy Wang
Email: huiwang@nsf.gov
Tel: (703) 292 2279

National Science Foundation

