

[View on GitHub](#)

grfp2020

An Open Letter in Response to NSF 20-587 (Graduate Research Fellowship Program)

An Open Letter Response to NSF 20-587 GRFP

July 30, 2020

Use [this link](#) to see signatories and add your signature to this letter.

To:

Dr. Sethuraman Panchanathan, Director National Science Foundation,

Dr. Ellen Ochoa (Chair), and the members of the National Science Board

CC: NSF GRFP Program officers: Drs. Jong-on Hahm, Christopher Hill, and
Narcisha S. Norman

Dear NSF Leadership and Program Officers of the Graduate Research Fellowship Program,

We write to you as members of the scientific community concerned about the recent Graduate Research Fellowship Program (GRFP) solicitation 20-587. Specifically, we are troubled by the identification of specific priority research areas:

“[I]n FY2021, GRFP will emphasize three high priority research areas in alignment with NSF goals. These areas are Artificial Intelligence, Quantum Information Science, and Computationally Intensive Research. Applications are encouraged in all disciplines supported by NSF that incorporate these high priority research areas.”

The GRFP is one of NSF’s most prestigious awards and has been the starting point for many of the US’s leading scientists. NSF’s stated purpose for the GRFP is to “help ensure the quality, vitality, and *diversity* of the scientific and engineering workforce of the United States.” We, the signatories to this letter believe in this purpose and the concomitant obligation to the highest standards for scientific merit, inclusion, equity, and diversity. **We are writing to you because this revision to the GRFP solicitation is both contrary to the program’s goals and harmful.**

This revision amplifies existing inequity

The GRFP has already come under public scrutiny, with Science reporting that just 10 universities represented 31% of 2019 awards. [1] Preferring certain research areas will mean a movement away from the GRFP's unique purpose in identifying and supporting the best scientists in any field and towards giving priority to one field over others. The change will also further contribute to the disproportionate awarding of the GRFP to students who attend schools with the most resources – a small handful of predominantly white, exclusionary undergraduate institutions. Contrary to the community's request that NSF broaden participation in this program, **the proposed change will further limit the potential for applications and awards from Historically Black Colleges and Universities (HBCU), Tribal Colleges and Universities (TCUs), and Hispanic Serving Institutions (HSIs).**

The consensus of research and reports funded or written by NSF, National Science Board, and the US National Academies of Science Engineering and Medicine [2-12] make it clear that underrepresented students, including people of color, women and gender minorities of all races, rural, first-generation, and low-income students have differential access and exposure to the areas now prioritized by the GRFP. **While we fully believe in the importance of computationally-driven technologies in the sciences, bringing this emphasis into the GRFP amplifies the digital divide.** In addition, emphasizing these research areas as the entry point to research careers may further disenfranchise students from underrepresented communities who are more susceptible to bias and data privacy abuses from AI/ML-driven technologies (and who therefore have heightened concerns about data privacy and bias). These students might be better served through culturally-sensitive exposure and training as undergraduates to allow them to develop informed agency in their decision making on these technologies.

Altogether, the revision sends a clearly exclusionary message and potentially adds to the problems noted in the 2014 evaluation of the GRFP (79.9% of fellows are white). [2] This disparity continues to be reflected on the list of GRFP alumni highlighted by NSF which features only three women and two persons of color. [13]

Calling for equity and not a change in merit

Commentators on social media and more than 3,000 people have signed a Change.org petition [14] calling for the removal of this revision. Many expressed concerns that the revision imposes a new requirement and a barrier that they themselves could not have met as past trainees. The recent clarification via Twitter (see below) insufficiently addresses this concern. Only changing the solicitation text itself could partially remedy our concerns.



National Science Foundation ✓
@NSF



Recent updates to the **#GRFP** solicitation have caused confusion in the community about how applicants will be selected. Let us clarify: GRFP applicants will be and always have been selected based on their individual merit.

“Recent updates to the GRFP solicitation have caused confusion in the community about how applicants will be selected. Let us clarify: GRFP applicants will be and always have been selected based on their individual merit. The revision reflects NSF's move to align with a coordinated federal strategy to secure America's position as a global leader in research and innovation in Artificial Intelligence, Quantum Information Science and other emergent areas. These changes are not intended to exclude any areas of science supported by NSF. Nor is it unusual; NSF has previously underscored agency-wide areas of emphasis while continuing to support a broad range of research. NSF will continue to encourage and accept applications in all eligible fields of science and engineering as indicated in the solicitation. In addition, NSF also wishes to draw the attention of early-career individuals to some exciting emerging fields.”



8:04 AM · Jul 28, 2020 · [Sprinklr](#)

NSF Tweet (July 28, 2020) <https://twitter.com/NSF/status/1288082834574409728>

The issue of merit raised in the tweet is important. Newly suggested areas of emphasis may reduce application quality, as students try to craft their GRFP proposals to incorporate inappropriate or premature approaches.

Equitable ways to improve GRFP

We strongly urge NSF to eliminate the preference for a narrow set of research areas (including revision 4 and elsewhere in the text) from the solicitation.

NSF has in recent years changed GRFP eligibility requirements to encourage a greater number of undergraduate applicants, [15] but this has unfortunately only increased disparities in funding awardees. [1,16,17] The addition of priority areas runs counter to NSF's effort to diversify and expand the applicant pool. **One of the GRFP's greatest strengths is that it encourages trainees to develop their own research ideas pathways on the way to becoming independent investigators.**

This reflects NSF's intent for GRFP of "investing in the person". Avoiding preferences for specific fields of science would allow the GRFP to better align with NSF's basic research mission. Eliminating the preferences sends the message that all modes of investigation (computationally-intensive or not) have the promise of advancing knowledge.

Instead of reserving some of the GRFP awards for priority areas, we suggest that NSF instead build capacity in the US science and engineering workforce by creating complementary programs. For example, the GRFP could create opportunities for award recipients to develop computational skills similar to the Graduate Research Internship Program (GRIP) and Graduate Research Opportunities Worldwide (GROW) programs. NSF could also expand XSEDE access in undergraduate education. NSF could also consider adopting initiatives to address potential issues related to ethics of data policy, use, and stewardship at earlier stages of training, so that all students, not just GRFP applicants, could benefit from this global contextualization.

We also encourage going above and beyond the high standard for NSF review by implementing a new level of transparency for the GRFP review process. This could include additional training of panelists for cultural sensitivity and bias. Community input into a new review process for GRFP could better ensure the students selected reflect the diversity we aspire to see within science.

There are many ways NSF can advance US research priorities without perpetuating disparities that exist for scholars at the beginning of their careers. The co-authors and other signatories extend an offer to share community perspectives to continue to improve access and inclusion in the GRFP. We look forward to a revised GRFP solicitation from NSF that meets its vision for inclusive science in the US.

Signatories

Add your name/organization by completing this form: [GRFP Signature Form](#)

Once we have reached 100 signatures we will send a physical copy to NSF and will continue collecting signatures and comments here. This list is **not** automatically updating so please be patient if your name does not appear right away!

* This individual is a co-author of this letter

Last updated 8:45PM Eastern, Monday August 10, 2020.

Diversity Word Cloud

This word cloud reflects a poll of signatories asking them to identify their relevant communities.



Corresponding author : Jason Williams, williams@cshl.edu

To request an edit to this signature list email williams@cshl.edu. Signatures will be updated at least once every 24 hours. Signatures will be added at least until August 15th, 2020.

FOOTNOTES AND REFERENCES

1. Hu, Jane C. (2019, August 26). NSF graduate fellowships disproportionately go to students at a few top schools. Science AAAS.<https://www.sciencemag.org/careers/2019/08/nsf-graduate-fellowships-disproportionately-go-students-few-top-schools>
2. Bartolone, J. B., Halverson, M. L., Hoffer, T. B., Wolniak, G. C., Setlak, L., Hedberg, E. C., Nielsen, E., Nhuan-Le, V., & Yisak, M. (2014). Evaluation of the National Science Foundation's Graduate Research Fellowship Program (NSFDACS08D1596).

3. Byars-Winston, A., Gutierrez, B., Topp, S., & Carnes, M. (2011). Integrating Theory and Practice to Increase Scientific Workforce Diversity: A Framework for Career Development in Graduate Research Training. *CBE—Life Sciences Education*, 10(4), 357–367. <https://doi.org/10.1187/cbe.10-12-0145>
4. Chemers, M. M., Zurbriggen, E. L., Syed, M., Goza, B. K., & Bearman, S. (2011). The Role of Efficacy and Identity in Science Career Commitment Among Underrepresented Minority Students: Efficacy and Identity in Science Career Commitment. *Journal of Social Issues*, 67(3), 469–491. <https://doi.org/10.1111/j.1540-4560.2011.01710.x>
5. Committee on Closing the Equity Gap: Securing Our STEM Education and Workforce Readiness Infrastructure in the Nation's Minority Serving Institutions, Board on Higher Education and Workforce, Policy and Global Affairs, & National Academies of Sciences, Engineering, and Medicine. (2019). *Minority Serving Institutions: America's Underutilized Resource for Strengthening the STEM Workforce* (L. L. Espinosa, K. McGuire, & L. M. Jackson, Eds.; p. 25257). National Academies Press. <https://doi.org/10.17226/25257>
6. Committee on Envisioning the Data Science Discipline: The Undergraduate Perspective, Computer Science and Telecommunications Board, Board on Mathematical Sciences and Analytics, Committee on Applied and Theoretical Statistics, Division on Engineering and Physical Sciences, Board on Science Education, Division of Behavioral and Social Sciences and Education, & National Academies of Sciences, Engineering, and Medicine. (2018). *Data Science for Undergraduates: Opportunities and Options* (p. 25104). National Academies Press. <https://doi.org/10.17226/25104>
7. Committee on Increasing the Number of Women in Science, Technology, Engineering, Mathematics, and Medicine (STEMM), Committee on Women in Science, Engineering, and Medicine, Policy and Global Affairs, & National Academies of Sciences, Engineering, and Medicine. (2020). *Promising Practices for Addressing the Underrepresentation of Women in Science, Engineering, and Medicine: Opening Doors* (R. Colwell, A. Bear, & A. Helman, Eds.; p. 25585). National Academies Press. <https://doi.org/10.17226/25585>
8. *Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads* (p. 12984). (2011). National Academies Press. <https://doi.org/10.17226/12984>
9. James, S. M., & Singer, S. R. (2016). From the NSF: The National Science Foundation's Investments in Broadening Participation in Science, Technology, Engineering, and Mathematics Education through Research and Capacity Building. *CBE—Life Sciences Education*, 15(3), fe7. <https://doi.org/10.1187/cbe.16-01-0059>
10. Whittaker, J. A., & Montgomery, B. L. (2012). Cultivating Diversity and Competency in STEM: Challenges and Remedies for Removing Virtual Barriers to Constructing Diverse Higher Education Communities of Success. *Journal of undergraduate neuroscience education : JUNE : a publication of FUN, Faculty for Undergraduate Neuroscience*, 11(1), A44–A51.
11. Williams, J. J., Drew, J. C., Galindo-Gonzalez, S., Robic, S., Dinsdale, E., Morgan,

- W. R., Triplett, E. W., Iii, J. M. B., Donovan, S. S., Fowlks, E. R., Goodman, A. L., Grandgenett, N. F., Goller, C. C., Hauser, C., Jungck, J. R., Newman, J. D., Pearson, W. R., Ryder, E. F., Sierk, M., ... Pauley, M. A. (2019). Barriers to integration of bioinformatics into undergraduate life sciences education: A national study of US life sciences faculty uncover significant barriers to integrating bioinformatics into undergraduate instruction. PLOS ONE, 14(11), e0224288. <https://doi.org/10.1371/journal.pone.0224288>
12. Wong, B. (2016). Minority Ethnic Students and Science Participation: A Qualitative Mapping of Achievement, Aspiration, Interest and Capital. Research in Science Education, 46(1), 113–127. <https://doi.org/10.1007/s11165-015-9466-x>
 13. https://www.nsfgrfp.org/resources/about_grfp/grfp_alumni
 14. Catania C. Petition · Remove priority research areas from NSF GRFP · Change.org. (n.d.). Retrieved July 30, 2020, from <https://www.change.org/p/national-science-foundation-remove-priority-research-areas-from-nsf-grfp>
 15. <https://www.nsf.gov/pubs/2016/nsf16051/nsf16051.pdf>
 16. Lucas, K. (n.d.). The Graduate Research Fellowship Program favors elite schools – again. Massive Science. Retrieved July 30, 2020, from <https://massivesci.com/articles/grfp-disparity-nsf/>
 17. Telis, N. (2018, April 3). The price of a GRFP, part 1. Natalie Telis. <https://telis.blog/2018/04/03/the-price-of-a-grfp-part-1/>



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

grfp2020 maintained by [JasonJWilliamsNY](https://jasonjwilliamsny.github.io/)

Published with [GitHub Pages](https://pages.github.com/)