

# Building Strong Homegrown Talent: An American STEM Workforce Strategy

## ACTION

Congress should authorize and fully fund a national workforce strategy that includes:

- Expanding an improved NSF Noyce program to at least 10 times its current annual budget.
- Supporting 200,000 research opportunities annually for undergraduate STEM majors at their home institutions.
- Providing a fivefold increase to the NSF Graduate Research Fellowship Program (GRFP).
- Unlocking the untapped potential of domestic workers by providing opportunities for the missing millions in STEM.

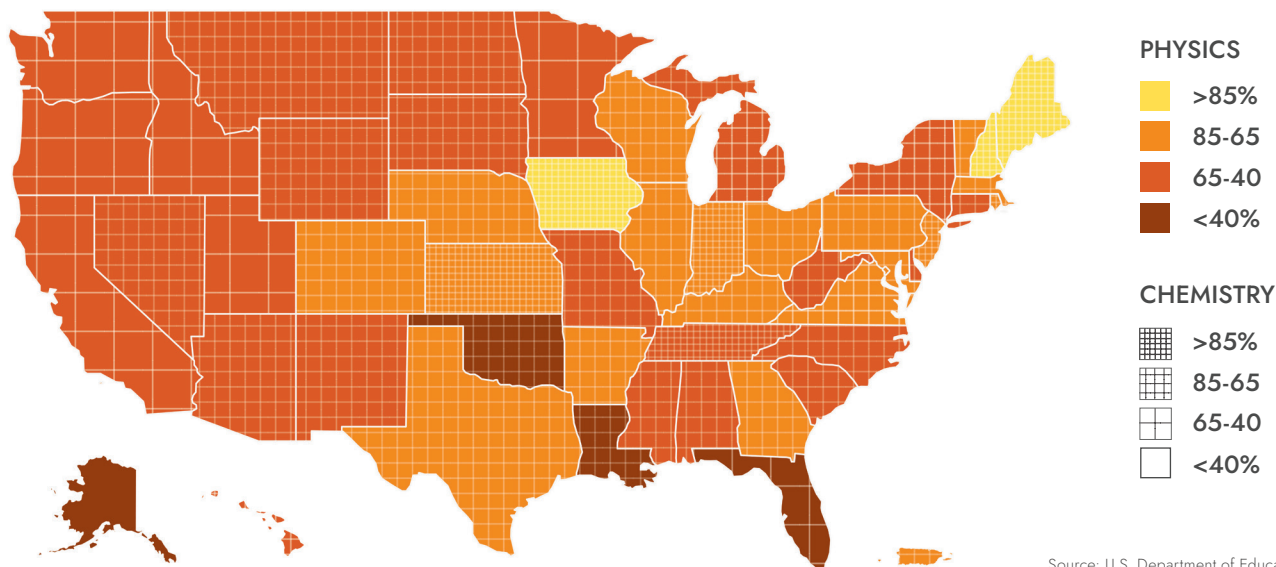
## A National STEM Workforce Crisis

A growing STEM teacher shortage, hundreds of thousands of undergraduate STEM majors failing to finish their degrees, and a significant nationwide shortage of advanced degree-holding STEM talent threatens to erode U.S. economic and national security.

## Ensure Quality K-12 STEM Education for Every Student in the U.S.

- This year, millions of U.S. students will attend a high school where critical STEM classes are not offered
- More than 70% of U.S. schools report having difficulties in filling positions with qualified candidates

Percent of High Schools Offering Physics or Chemistry by State



Source: U.S. Department of Education, Office for Civil Rights, Civil Rights Data Collection, 2017-18, available at <http://ocrdata.ed.gov>.

## RECOMMENDATION

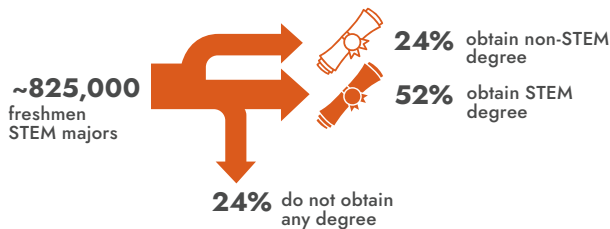
A tenfold increase to the NSF Noyce Teacher Scholarship Program will fill the estimated teacher shortage by supporting hundreds of teacher preparation programs across the U.S. and more than 10,000 high-quality STEM teachers each year.

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## Dramatically Increase the Retention of STEM Majors Through Paid Research Experiences at their Home Institutions

- Only 52% of the 800,000 undergraduate students who start a major in STEM each year successfully graduate with a STEM degree.
- Paid professional opportunities related to STEM careers create a sense of belonging and financial support that improve the retention of STEM students

Attrition rate of STEM majors is hurting domestic workforce



Source: Estimations based on latest available data: Bachelor's degrees awarded in 2022 IES <https://nces.ed.gov/fastfacts/display.asp?id=899>, STEM attrition rates IES <https://files.eric.ed.gov/fulltext/ED544470.pdf>

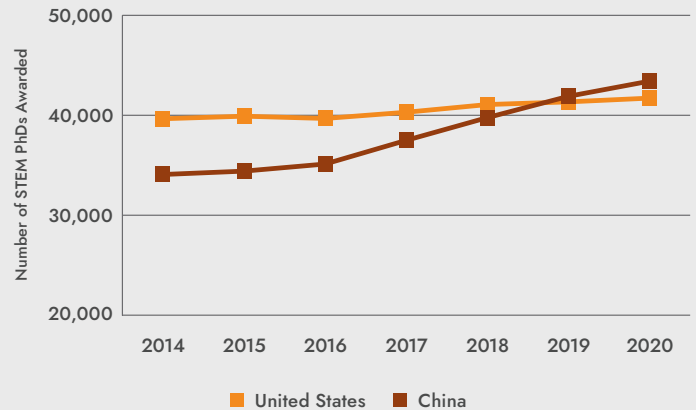
### RECOMMENDATION

A fully funded program at NSF that supports at least 200,000 semester-long, paid, part-time research opportunities annually for undergraduate STEM majors at their home institutions will increase the retention of talented American students in STEM careers.

## Support the Growth of Domestic Advanced-Degree STEM Workers

Between 2014 and 2020, the number of STEM PhD graduates in the United States increased by less than 5%, whereas in China it increased by 27%, making China the largest producer of STEM PhD holders since 2020. The U.S. federal government plays a critical role in the creation of the U.S. STEM advanced degree holders.

### The U.S. No Longer the Major Producer of STEM PhDs



Source: NSF NCSES Science & Engineering Indicators 2024, <https://www.ncses.nsf.gov/pubs/nsb20243/talent-u-s-and-global-stem-education-and-labor-force>

### RECOMMENDATION

A fivefold increase for NSF's GRFP program will ensure a strong, homegrown, advanced degree-holding workforce.

## Providing Opportunities for the "Missing Millions" in STEM

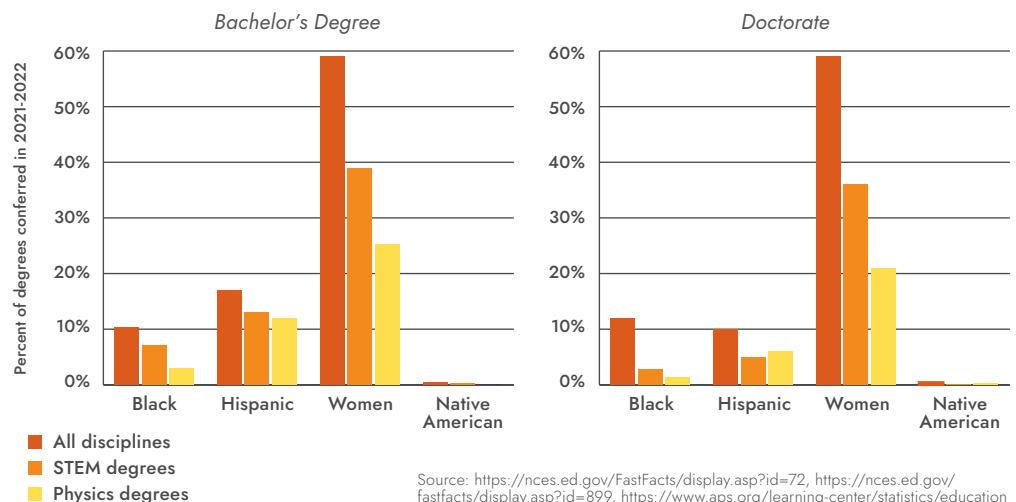
In physics, for example, participation by women has remained around 20% for decades and fewer than 15 Black physicists earn a PhD each year, dramatically out-of-step with nationwide demographics.

### RECOMMENDATION

Effective programs aimed at increasing participation by those groups in STEM should be supported and fully funded.

## Missing Millions in STEM

Clear Opportunities to Grow STEM Workforce through Improved Recruitment and Retention



Source: <https://nces.ed.gov/FastFacts/display.asp?id=72>, <https://nces.ed.gov/fastfacts/display.asp?id=899>, <https://www.aps.org/learning-center/statistics/education>