Addressing the Chronic Shortage of High-Quality STEM Teachers in the US

Members of Congress should:

- support appropriations matching the authorization levels for NSF’s Robert E. Noyce Teacher Scholarship Program; and
- champion legislation improving program’s effectiveness in recruiting and retaining qualified K-12 STEM teachers.

US Shortage of Well-Prepared STEM Teachers

In 2019, only 20% of high school graduates that intended to pursue a career in STEM were prepared to succeed in their first year as college STEM students due, in part, to a dramatic shortage of qualified STEM teachers.

In the US, 8% of teachers leave the profession annually, and more than half quit teaching before reaching retirement.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Percent with major or minor and/or certification in main subject area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>37%</td>
</tr>
<tr>
<td>Biology</td>
<td>65%</td>
</tr>
<tr>
<td>Chemistry</td>
<td>34%</td>
</tr>
<tr>
<td>Physical Science</td>
<td>38%</td>
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</tbody>
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Source: Schools and Staffing Survey, 2012

What is the NSF Noyce Program?

The program aims at increasing capacity to train qualified STEM K-12 teachers at higher-education institutions and to support Noyce Scholars (outstanding STEM students and teachers) to become qualified STEM K-12 teachers and leaders.

20 Years of Success

425 institutions [1] 12,000 Noyce Scholars [2]

Noyce scholars are more likely to teach in high-needs schools, [3] to stay in teaching careers longer [4] and have a very high impact on their student’s learning compared to other programs.

Current Barriers Limiting Effectiveness

- Low stipends and scholarships are a barrier for those who want to join the teaching workforce.
- Long loan payback conditions are a barrier for entry and may be ineffective at increasing retention in the teaching field.

These provisions do not exist for other NSF-sponsored fellowships.

Steps to Increase Effectiveness

Direct NSF to pilot-test program initiatives aimed at increasing recruitment and retention of Noyce scholars, including:

- Adjust stipends and scholarships to be at least the cost-of-attendance or to match graduate research assistantships stipends at each institution.
- Eliminate any payback provision, making the fellowship a traineeship-based program, where Noyce scholars devote full time to advancing their training, including through teaching and other professional development activities, consistent with other NSF-sponsored fellowships.
- Evaluate the impact of programs with a report to Congress after five-years.