

STEM: Additional Data Needed on Graduate Researcher and Postdoctoral Scholar Compensation

GAO-26-107757

Q&A

Report to Congressional Requesters

April 8, 2026

Why This Matters

A robust science, technology, engineering, and mathematics (STEM) workforce drives innovation and economic growth and supports U.S. national security. Federal agencies have invested billions of dollars annually in STEM research, which includes investments in training graduate researchers and postdoctoral scholars (postdocs) to join this workforce. The U.S. STEM graduate education system is world-class and has historically attracted top domestic and international students who are interested in pursuing advanced degrees and careers conducting cutting-edge research. Graduate researchers and postdocs may receive compensation in the form of monetary benefits—such as stipends, salaries, and wages—and fringe benefits—such as vacation, sick leave, and health insurance.

We were asked to examine federal financial support for STEM graduate researchers and postdocs. This report examines this compensation and how related factors influence recruitment and retention, how many graduate researchers and postdocs receive compensation, the federal role in establishing such compensation, and the extent to which agencies collect compensation data. We selected eight agencies for our review. We chose six that provided over 80 percent of federal funding to science and engineering graduate researchers in academic year 2021—the Departments of Agriculture (USDA); Defense (DOD); Energy (DOE); and Health and Human Services (HHS), which includes the National Institutes of Health (NIH); the National Aeronautics and Space Administration (NASA); and the National Science Foundation (NSF). We also selected two additional agencies that either collect relevant statistical data or coordinate federal STEM initiatives—the Department of Education and the Office of Science and Technology Policy (OSTP)—and NSF, which collects relevant statistical data in addition to being one of the six agencies that provides the most federal funding to graduate researchers.

Key Takeaways

- Federal agencies fund graduate researchers and postdocs either directly—such as through a research fellowship—or indirectly—such as through a grant to a university. Agencies set compensation for their directly funded scholarship, traineeship, and fellowship programs. In the case of indirect recipients funded by federal grants, universities set compensation levels. However, agencies may informally influence indirect compensation levels set by universities.
- About 62,500 STEM graduate researchers (27 percent of the U.S. total) and 22,000 postdocs (50 percent of the U.S. total) received direct or indirect federal funding in academic year 2023, according to our analysis of the most

recent National Center for Science and Engineering Statistics (NCSES) data. Centralized data on graduate researcher compensation do not exist. However, some program-level compensation information is available. For example, one federal program reported providing each of its recipients \$37,000 in direct compensation in fiscal years 2023 through 2025. In addition, directly funded postdocs earned \$60,000 in median income in academic year 2023, based on our analysis of NCSES data. Indirectly funded graduate researchers earned about \$36,000 in median salary based on our analysis of data obtained from 48 selected universities and postdocs earned \$62,200 in academic year 2025, based on our analysis of data obtained from 45 selected universities.

- Factors that influence whether graduate researchers and postdocs pursue or remain in federally funded STEM research positions include future career goals, employment prospects, and funding stability, according to those who responded to our questionnaire. Respondents' views also varied by the perceived sufficiency of their compensation package and whether they lived in a high- or low-cost region.
- We recommend that NSF take two actions to improve data on these researchers. First, we recommend that NSF conduct an analysis to determine the gaps in data needed to fully assess the adequacy of compensation for graduate researchers and postdoctoral scholars and assess the feasibility of collecting such data. Second, we recommend NSF establish a timeline to conduct a study on graduate student funding that Congress required to be completed by August 2023 and which NSF had not yet undertaken as of March 2026.

How do federal agencies fund research supporting STEM graduate researchers and postdocs?

Agencies fund graduate researchers and postdocs directly or indirectly.¹ We define direct funding as programs that a graduate researcher or postdoc directly applies for, even if funding is distributed to a university that then provides it to the student.² Direct funding mechanisms include research fellowships, scholarships, traineeships, and grants.³ For example, agency-sponsored Research Participation Programs managed by the Oak Ridge Institute for Science and Education provide compensation directly to full-time graduate researchers pursuing doctoral degrees and postdocs in STEM fields.⁴

We define indirect funding to mean that a graduate researcher's or postdoc's compensation is taken from a larger award to a university.⁵ For indirect funding, agency programs provide funding to universities through mechanisms such as grants, contracts, and cooperative agreements. These mechanisms may fund training programs, laboratories, or larger research projects, with some of the financial assistance used by the recipient to compensate graduate researchers and postdocs. For example, NIH's research project grants fund principal investigators—such as university professors—to carry out specified research projects. This funding, in part, compensates graduate researchers and postdocs who work on the projects. In academic year 2021, 69 percent of full-time graduate researchers and 81 percent of postdocs supported by the federal government were indirectly funded through grants, according to the National Science Board's analysis of NCSES data.⁶

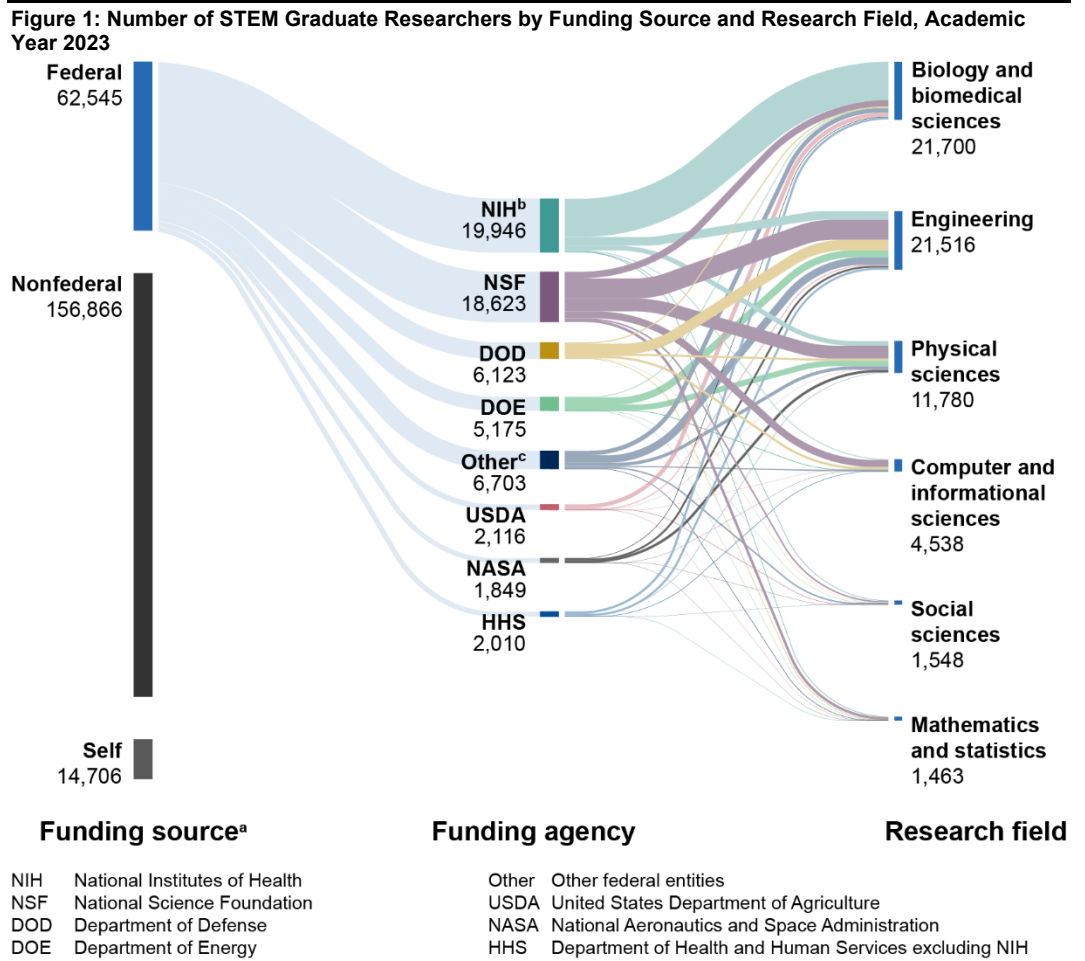
We identified 84 programs that compensated graduate researchers or postdocs, either directly or indirectly, across the six agencies that provide the most federal funding to science and engineering graduate researchers—USDA, DOD, DOE, HHS (which includes NIH), NASA, and NSF.⁷ These programs vary in the type and amount of compensation offered. For a list of programs, see appendix I.

Directly and indirectly federally funded graduate researchers and postdocs may receive compensation in the form of monetary and fringe benefits. Additional benefits may include coverage of tuition costs, professional development activities like conferences and networking opportunities, and access to specialized research facilities.

How many STEM graduate researchers and postdocs receive federal funding?

About 62,500 STEM graduate researchers (about 27 percent of the U.S. total) and 22,200 postdocs (about 50 percent of the U.S. total) received direct or indirect federal funding in academic year 2023, according to our analysis of the most recent NCSES data.⁸ The number funded remained consistent from 2017 through 2023, including when analyzed across research field—to include biology and biomedical sciences, engineering, physical sciences, computer and information sciences, social sciences, and mathematics and statistics—and agency.⁹ For example, in each of those academic years, agencies funded about 26 to 28 percent of STEM graduate researchers and about 50 percent of STEM postdocs.

Among the six agencies that collectively fund the largest share of federally funded STEM graduate researchers, NIH and NSF funded the most, followed by DOD in academic year 2023. In addition, these agencies funded more graduate researchers in biology and biomedical sciences, engineering, and physical sciences compared with all other STEM fields (see fig. 1).



Source: GAO analysis of National Center for Science and Engineering Statistics (NCSES) data. | GAO-26-107757

Note: For the purposes of this analysis, science, technology, engineering, and mathematics (STEM) includes the following: biology and biomedical sciences, engineering, physical sciences, computer and information sciences, social sciences, and mathematics and statistics.

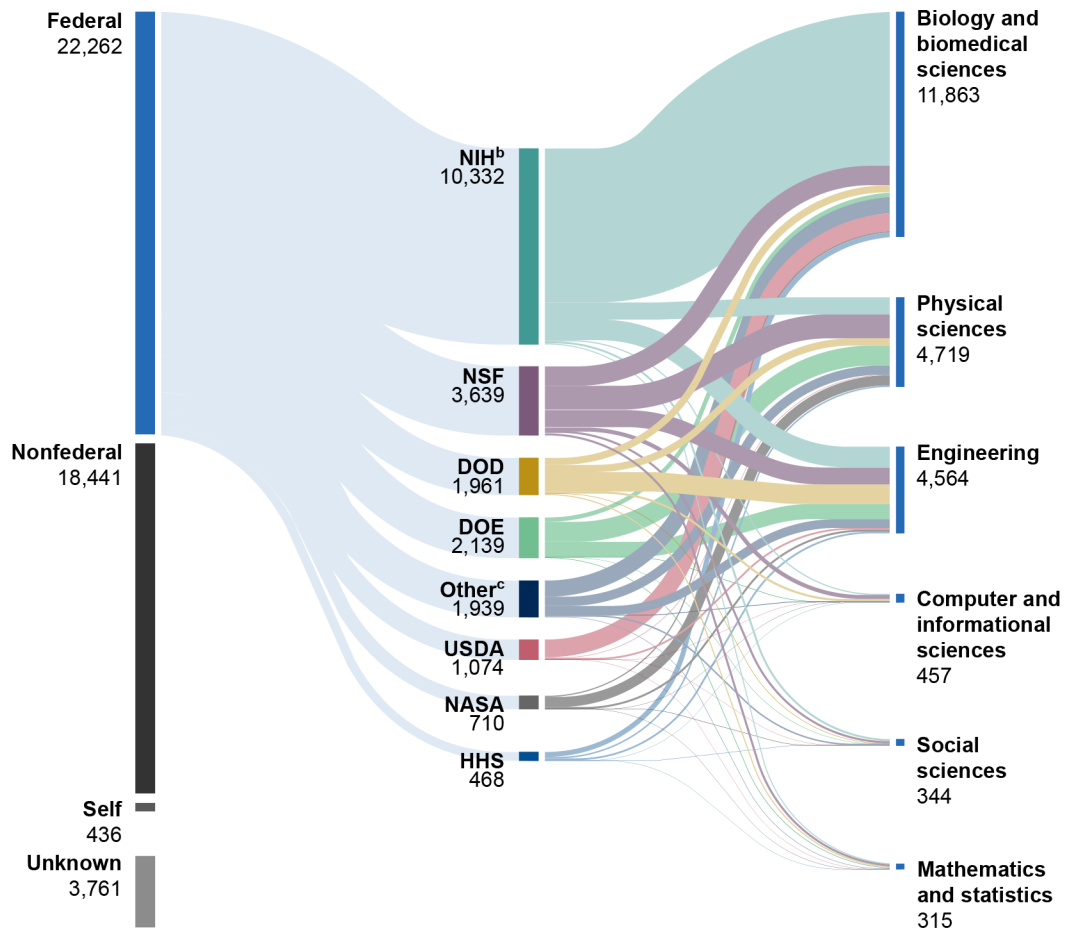
^aFederal sources include U.S. federal agencies and exclude all federally guaranteed loans. Nonfederal sources include those from state, local, and foreign governments, nonprofits, and private industry. Self-support sources include loans—private or federally guaranteed—and personal or family contributions.

^bNIH is within HHS, but NCSES reports their data separately.

^cNCSES uses the “other” category to describe any other federal entity that is the primary funding source for a graduate researcher or postdoc. Examples include AmeriCorps and the Departments of Commerce, Education, and Transportation.

Similar to STEM graduate researchers, NIH and NSF funded the most postdocs, followed by DOE. In addition, federal agencies funded more postdocs in biology and biomedical sciences, compared with all other fields (see fig. 2).

Figure 2: Number of STEM Postdoctoral Scholars (Postdocs) by Funding Source and Research Field, Academic Year 2023



Funding source ^a	Funding agency	Research field
NIH	National Institutes of Health	
NSF	National Science Foundation	
DOD	Department of Defense	
DOE	Department of Energy	
Other ^c	Other federal entities	
USDA	United States Department of Agriculture	
NASA	National Aeronautics and Space Administration	
HHS	Department of Health and Human Services excluding NIH	

Source: GAO analysis of National Center for Science and Engineering Statistics (NCSES) data. | GAO-26-107757

Note: For the purposes of this analysis, science, technology, engineering, and mathematics (STEM) includes the following: biology and biomedical sciences, engineering, physical sciences, computer and information sciences, social sciences, and mathematics and statistics.

^aFederal sources include U.S. federal agencies and exclude all federally guaranteed loans. Nonfederal sources include those from state, local, and foreign governments, nonprofits, and private industry. Self-support sources include loans—private or federally guaranteed—and personal or family contributions. NCSES includes the unknown category for postdocs because institutions’ ability to track funding source data varies more for this group compared to graduate researchers, according to officials.

^bNIH is within HHS, but NCSES reports their data separately.

^cNCSES uses the “other” category to describe any other federal entity that is the primary funding source for a graduate researcher or postdoc. Examples include AmeriCorps and the Departments of Commerce, Education, and Transportation.

What is the federal role in setting compensation levels for STEM graduate researchers and postdocs and how, if at all, do selected agencies coordinate in establishing levels?

For recipients of direct funding, agencies set compensation for STEM graduate researchers and postdocs based either on federal salary schedules—such as the Office of Personnel Management’s General Schedule—or on a program-by-program basis. For example, USDA compensates Agricultural Research Service postdocs based on the General Schedule. When setting compensation on a program-by-program basis, agencies consider factors such as legal authorities governing the program, competitiveness with similar federal programs, and available funds.

In the case of graduate researchers and postdocs funded indirectly out of federal grants to universities, agencies do not set compensation because under regulations governing the administration of such grants, the responsibility to allocate grant funding lies with the grant recipient.¹⁰ Specifically, uniform cost principles within these regulations prescribe certain rules that the universities must follow in order for costs such as compensation—which may include fringe benefits—to be allowable under the grant.¹¹ These rules also require universities to pay employees what they otherwise pay for similar work, in accordance with their established written policies, applicable laws, and other factors such as geographic market prices.¹² However, agencies may informally influence indirectly funded graduate researcher and postdoc compensation levels, according to some stakeholders. For example, universities may use NIH’s National Research Service Award stipend levels as a benchmark when determining compensation for graduate researchers and postdocs.¹³

We found that selected agencies do not formally coordinate to determine compensation for graduate researchers and postdocs they directly fund—such as through fellowships, scholarships, or traineeships—based on information obtained from selected agencies. However, some agencies informally benchmark against similar federal programs when setting direct compensation to ensure competitiveness. In addition, agencies that coordinate other aspects of federal STEM initiatives—Education and OSTP—do not coordinate compensation setting across funding agencies, according to officials.

What is the typical compensation level for graduate researchers and postdocs, and how does it compare to similarly educated groups?

Centralized compensation data on directly funded STEM graduate researchers do not exist. However, agencies may provide program-level compensation information publicly in program solicitations. For example, NSF compensated recipients of the Graduate Research Fellowships Program with a \$37,000 stipend and \$12,000 to \$16,000 in education allowance in fiscal years 2023 through 2025, according to its program solicitations. Additionally, directly funded STEM graduate researchers may receive other benefits such as health insurance and paid leave.

Directly funded postdocs earned \$60,000 in median annual income and most received the ability to elect into certain fringe benefits in academic year 2023, based on our analysis of the most recent NCSES data.¹⁴ For example, among federally funded STEM postdocs who received direct compensation, 94 percent were offered employer sponsored health insurance, 87 percent were offered some form of paid leave, and 60 percent were offered a retirement plan that included employer contributions.

Centralized data on indirectly compensated graduate researchers and postdocs also do not exist. To assess compensation for these groups, we analyzed universities’ data among those identified as the top 50 for research and development expenditures in 2023. Of those universities, we obtained information from 48 to estimate graduate researcher salaries and 45 to estimate postdoc salaries in academic year 2025, respectively.

Indirectly compensated graduate researchers earned about \$36,000 in median annual salary in academic year 2025, based on our analysis of university data.¹⁵ In addition, indirectly compensated postdocs earned about \$62,200 in median annual salary.¹⁶ These groups may also receive other benefits—such as health insurance and paid leave—but they can vary across universities and the mechanism by which individuals receive their indirect funding. For example, a university may provide benefits to indirectly funded graduate researchers or postdocs it classifies as employees but not to those it classifies as fellows, according to an academic stakeholder we interviewed. Moreover, some graduate researchers and postdocs may receive full or partial health insurance based on their funding source, while others may not receive any coverage, according to another stakeholder.

Compensation levels for graduate researchers and postdocs can vary based on research field and funding source but may be lower compared to similarly educated groups in other occupations. For example, one academic stakeholder we interviewed said postdocs are undercompensated but likened their education level to certain high-earning professionals, such as law associates. Moreover, the most recent U.S. Bureau of Labor Statistics data from its 2024 Current Population Survey show that workers with a bachelor's degree—a similarly educated group compared to graduate researchers—earned about \$82,200 in median annual income. Likewise, workers with a doctoral degree—a similarly educated group compared to postdocs—earned about \$118,500.¹⁷ When compared to their respective group, directly and indirectly compensated graduate researchers and postdocs earned less in median income.

To what extent do agencies collect data on graduate researcher and postdoc compensation?

Agencies collect varied compensation data for graduate researchers and postdocs—such as data on stipends, salaries, and wages—depending on whether they are directly or indirectly funded. For example, DOD collects stipend information for directly funded graduate researchers and postdocs, but not for those that are indirectly funded. DOD officials said variations in how programs track and report information can lead to data collection challenges. In addition, a DOE contractor collects compensation data and demographic information for graduate researchers and postdocs participating in programs it directly administers on behalf of DOE, but DOE does not collect data on graduate researchers supported by a principal investigator's grant. When agencies collect these data, they do not collect them in standardized formats, which would allow for a more detailed assessment, according to agency officials. Variation in agencies' data collection practices creates data gaps.

As previously discussed, NCSES also collects data on graduate researchers and postdocs through surveys such as the *Survey of Graduate Students and Postdoctorates in Science and Engineering* and *Survey of Doctorate Recipients*. However, NCSES survey data may be of limited use for assessing compensation for indirectly funded postdocs due to potential errors in respondent reporting. Specifically, the Survey of Doctorate Recipients relies on respondents to report their sources of support, but indirectly funded postdocs may be uncertain about whether they receive federal funds and from which agencies, according to NCSES officials.

NCSES is responsible for the collection, acquisition, analysis, reporting, and dissemination of statistical data related to science and engineering education as well as workforce data.¹⁸ It is also responsible for determining which data to collect based on statutory requirements, executive orders, and stakeholder input. Specifically, pursuant to the America COMPETES Reauthorization Act of 2010, the duties of NSF's NCSES include collecting statistical data that are relevant

and useful to practitioners, researchers, policymakers, and the public on the science and engineering workforce, and on the condition and progress of U.S. STEM education.¹⁹ The *NCSES Strategic Plan 2024-2028*, states that NCSES should aim to enhance the quality and utility of products and services by using new and improved methods.²⁰ Further, NSF's *Information Quality Guidelines* state that NSF will assess the utility of information disseminated to the public.²¹ According to these guidelines, utility is achieved by staying informed about internal and external information needs and by developing new data or information products where appropriate.

We found that NCSES does not collect compensation data in a manner that allows for a detailed assessment of graduate researcher and postdoc compensation across various funding agencies, especially for indirect recipients. NSF and NCSES officials said that they had not identified gaps in data needed to fully assess the adequacy of stipends and benefits and were not aware of any studies assessing the feasibility of collecting such data. Further, NSF and NCSES officials said they had not identified a need to collect data on graduate researcher or postdoc compensation across federal agencies and were not aware of a policy requiring its collection. NSF and NCSES officials said they would need to take steps to determine how to collect this information and that collecting this compensation data could require new data collection methods.

Some stakeholders said collecting this compensation information would be valuable. For example, a former senior agency official and science policy advisor said a comprehensive dataset would be valuable for informing policy decisions regarding postdoc compensation. Another stakeholder representing a federation of scientific societies said they collected data on graduate researcher compensation, which could be used to make recommendations about U.S. STEM education priorities and initiatives. In the absence of reliable and consistent data, they made efforts to collect this information themselves. The stakeholder collected graduate researcher compensation data for one major field and said only half of the graduate researchers contacted responded to their survey, which provided an incomplete or potentially skewed picture of the stakeholder's target population because the opinions of the non-respondents were not represented.

Our past work on key practices in evidence-building and performance management calls for agencies to build or collect the evidence they need to understand and to assess the progress and outcomes of government efforts.²² Collecting and assessing more comprehensive compensation data for STEM graduate researchers and postdocs can help agencies build the evidence they need to better understand the adequacy of current compensation structures for their programs. Inadequate compensation may prompt graduate researchers and postdocs to seek careers in private industry rather than academic positions. It may also prompt them to leave the field entirely, according to a stakeholder we interviewed. NSF would be in a better position to provide policymakers with a more complete picture of the financial health and stability of the STEM research workforce if it were to comprehensively identify gaps in data needed to fully assess the adequacy of compensation and to assess the feasibility of collecting such data.

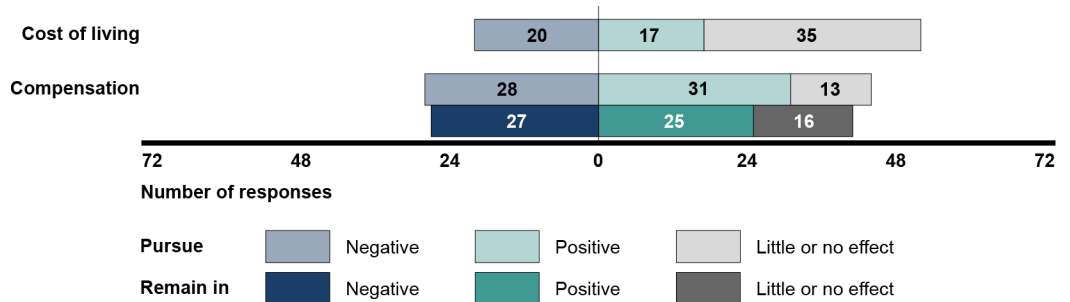
The law commonly referred to as the CHIPS and Science Act of 2022 includes a provision for NSF to engage a qualified independent organization to conduct a study on graduate student funding, including the effects of different funding mechanisms on graduate student experiences and outcomes, and to publish the results by August 9, 2023.²³ According to the provision, NSF should also include a recommendation for the appropriate balance between fellowships, traineeships, and other funding models.

To request research proposals on this topic, NSF revised its solicitation for the Innovations in Graduate Education program in January 2024. NSF officials said the program supported efforts to examine innovative funding models for graduate education. However, as of March 2026, NSF has not established a timeline to contract with an independent organization to conduct a study on graduate student funding as directed, due to competing priorities. Establishing a timeline would help ensure that the study is completed and, in turn, provide Congress and other policymakers with information to better understand the effectiveness of existing funding mechanisms. This information would be valuable to Congress to help determine the correct balance between fellowships, traineeships, and other funding models and improve Congress’s and other policymakers’ understanding of existing funding mechanisms. It would also help them choose actions intended to improve graduate researcher experiences and outcomes.

How does compensation influence STEM graduate researchers’ and postdocs’ decisions to pursue or remain in federally funded research programs?

Compensation and cost of living were key factors influencing whether STEM graduate researchers and postdocs chose to pursue or remain in federally funded STEM positions. To assess how these and other factors affected decisions, we administered a questionnaire to a nongeneralizable sample of 72 graduate researchers and postdocs, conducted small group discussions with questionnaire participants, conducted a literature review, and interviewed stakeholders.²⁴ Illustrative insights from our questionnaire respondents show that views varied by the perceived sufficiency of their compensation package and whether they lived in a high- or low-cost region. See appendix II for a summary of respondents’ views on other factors influencing decisions to pursue or remain in federally funded STEM research positions.

Figure 3: Graduate Researchers’ and Postdocs’ Views of Effects of Compensation Related Factors on Career Decisions Collected Between March and May 2025



Source: GAO analysis of questionnaire data. | GAO-26-107757

Note: The response totals for each factor may not sum to 72, as some respondents chose not to rate certain factors. A “negative effect” means the factor made respondents less likely to pursue or remain in a federally funded research program, and a “positive effect” means the factor made them more likely to do so or continue doing so. We did not consider cost of living as a separate retention factor, as universities may address it through compensation packages—such as location-based pay and market adjustments—which may have an influence on a students’ decision to pursue a program.

Graduate researcher and postdoc compensation positively affected decisions to pursue or remain in federally funded research positions when it eased financial burden but negatively affected these outcomes when it increased financial instability, according to respondents. For example, several respondents indicated that their compensation package was sufficient to maintain a level of financial stability. However, several respondents expressed dissatisfaction with compensation. Reasons for this dissatisfaction include concerns about cost of living and higher pay from the private sector.

Statement from a federally funded postdoc about their compensation

“I’m a clinical research scientist. ...I’ve made a lot of sacrifices financially to be a scientist and contribute to science. I could go get a job tomorrow as a clinician and make maybe \$30,000 or \$40,000 more than I’m making as a postdoc, and I think that that is an issue in general and is very mentally taxing and makes me question why I’m trying to contribute to the greater good often. Salary is a huge factor for me and it’s really unfortunate, in my opinion, that science is not better compensated...”

Source: GAO questionnaire respondent. | GAO-26-107757

Similarly, cost of living either negatively or positively influenced decisions to pursue a research position based on whether cost of living affected their financial stability, according to several questionnaire respondents and a stakeholder. For example, one respondent said that cost of living was a major factor in their decision-making. After completing their doctoral degree, they accepted a postdoc position in a lower cost of living region, factoring the compensation level into their relocation plans. Another respondent in a lower-cost region also described compensation levels as more manageable. Conversely, a respondent based in a higher-cost area reported cost of living as a challenge. One stakeholder said that when universities offer relocation benefits or adjust stipends to reflect the cost of living, they are better positioned to attract talented researchers, especially in higher-cost areas.

Statement from a federally funded postdoc about compensation and cost of living

“The [agency] stipend... postdoc level is much lower than what I’m receiving because the university department bumped up my salary because I’m in a high cost of living area. So, [the university is] supplementing my salary a bit so I guess that’s an important point [because] I would not have really been able to live. It’s still tight but it would be much more challenging on the current [agency] postdoc levels in my location...near impossible.”

Source: GAO questionnaire respondent. | GAO-26-107757

Three stakeholders, including university faculty and a professional organization that represents STEM graduate researchers and postdocs, described unionization as contributing to recent or potential increases in compensation. Between 2012 and 2024, the number of union represented graduate student employees, which include graduate researchers, more than doubled, according to the National Center for the Study of Collective Bargaining in Higher Education and the Professions (National Center). As of January 2024, 10 bargaining units represented over 11,000 postdocs at U.S. universities, according to National Center data. According to the National Center, graduate student employee union representation increased by 133 percent since 2012, and as of January 2024, over 150,000 graduate student employees were union members.²⁵

Several stakeholder perspectives highlighted that rising compensation levels for graduate researchers and postdocs may lead to universities offering fewer positions due to financial limitations. According to literature we reviewed, this tradeoff raises concerns about equity, particularly at less well-resourced universities.²⁶ Moreover, a stakeholder noted that it is unclear what the effect of unionization and increasing compensation levels have on the decisions of people of diverse backgrounds to pursue or remain in federally funded positions.

Statement from a stakeholder about compensation trends

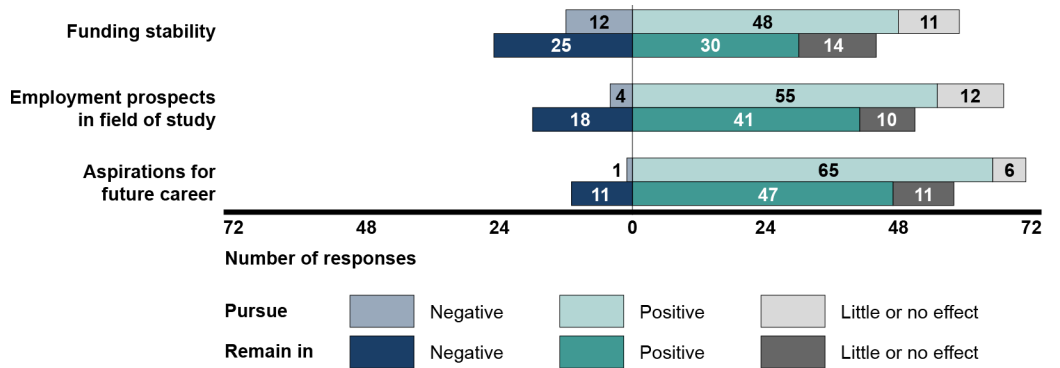
“Salary increases may result in a reduction in the number of graduate researchers an institution can support, which could reduce research productivity. It could also directly affect an institution’s overall budget. This is because if grant amounts are flat, but institutions pay students more, institutions must cover the difference between what a grant can provide and the agreed upon stipend.”

Source: GAO interview with a stakeholder. | GAO-26-107757

What other factors, not related to compensation, influence graduate researchers' and postdocs' decisions to pursue or remain in federally funded research programs?

Aspirations for future careers, employment prospects in their field of study, and funding stability are other key factors in STEM graduate researchers' and postdocs' decisions to pursue or remain in federally funded positions. While these factors are viewed by respondents as having a positive effect on decisions to pursue or remain in programs, other respondents cited concerns about funding uncertainty (see figure 4). For additional information, see appendix II.

Figure 4: Graduate Researchers' and Postdocs' Views of Factors Not Related to Compensation on Career Decisions Collected Between March and May 2025



Source: GAO analysis of questionnaire data. | GAO-26-107757

Note: The response totals for each factor may not sum to 72, as some respondents chose not to rate certain factors. A "negative effect" means the factor made respondents less likely to pursue or remain in a federally funded research program, and a "positive effect" means the factor made them more likely to do so or continue doing so.

Based on responses to our questionnaire, aspirations for the future and employment prospects have an influence on decisions to pursue or remain in federally funded research positions. For example, one respondent reported pursuing a research position due to the belief their work can lead to meaningful change, while several others said they remained in their positions due to personal and professional goals, such as contributing to their field. Moreover, several respondents provided examples that promising employment prospects could influence decisions to pursue or remain in federally funded research positions positively. However, several respondents also expressed concerns about their future careers.

Written statement from questionnaire respondent

"A huge reason for me to want to continue in research was the fact that federal funding allowed me to pursue research due to the potential impact of my findings for health and return to the community...Most scientists who stay in federally funded positions do so to educate the next generation, pursue novel ideas ([which] may not immediately generate revenue but have profound implications for future understanding of health or technology), want freedom of intellectual pursuits, or genuinely care about providing research or findings directly to the community."

Source: GAO questionnaire respondent. | GAO-26-107757

In one instance, a respondent noted that aspirations may play a larger role than factors such as funding stability. This respondent said they would remain in their position despite funding uncertainty because federal research and development is valuable for advancing innovation and addressing societal challenges.

Statement from a federally funded postdoc about uncertainty

"... I really enjoy what I do so I would not prefer to switch areas even because of the uncertainty. I also think the U.S. is a very special place to do science because a lot of entrepreneurial spirit exists here, and a lot of the science does get translated... so very few places in the world exist where such fundamental 'blue sky science' touches real-world applications and it makes a difference to people."

Source: GAO questionnaire respondent. | GAO-26-107757

However, several respondents cited their concerns about funding instability linked to shifts in federal priorities. For example, one respondent unexpectedly lost funding in the middle of their program, which made them apply to jobs outside of the U.S.

A stakeholder shared this concern, noting funding uncertainty and other recent shifts in federal priorities related to STEM research. This stakeholder said funding disruptions may affect recruitment for federally funded research positions. A respondent described the effect of funding uncertainty as a "brain drain," where talented researchers who are discouraged by funding uncertainty may leave the U.S. in search of research opportunities.

With funding uncertainty and shifting federal priorities, the future of STEM research in the United States is unclear, according to a stakeholder. According to a 2025 National Academies of Sciences, Engineering, and Medicine report, the withdrawal of federal funding and changes in federal priorities have introduced significant uncertainty and instability onto STEM research, placing added strain on graduate programs, the availability of postdoctoral positions, and the career prospects of early-career researchers. The report described funding cancellations, budget reductions at major federal science agencies, and universities reducing or suspending graduate admissions, due to reasons such as the shift in federal priorities.²⁷

What steps have agencies taken to assess and address barriers to recruit and retain federal STEM graduate researchers and postdocs?

Based on interviews with agency officials, we found that some agencies took steps to assess and address recruitment and retention barriers related to compensation levels. To improve recruitment and retention, the Centers for Disease Control and Prevention (CDC) within HHS sets its starting salary higher than the normal federal starting pay rate for a given salary band, and introduced other benefits, such as a hardship allowance, according to officials. This allowance is a one-time payment given to ensure that financial hardships do not prevent fellows from accepting or completing their fellowship, according to officials.

Further, NIH took steps to assess and address compensation barriers by convening a working group on postdoc training in December 2022, which evaluated how factors, including compensation, affected recruitment and retention.²⁸ In response to the working group's 2023 report, NIH implemented an approximately 4 percent increase for graduate researchers and an approximately 8 percent increase for postdoctoral scholars in FY 2024 stipend levels.²⁹ Agency officials from DOE, FDA, the Department of Education, and NSF said they did not conduct assessments focused on compensation barriers, and USDA said that such evaluations fell outside their purview.

In response to provisions in the CHIPS and Science Act of 2022, in May 2024, OSTP's National Science and Technology Council (NSTC) Committee on STEM released two reports identifying how organizational climate and caregiver-related policies may affect participation in federally funded STEM research.³⁰ These reports included 10 total recommendations to agencies to improve STEM participation. NIH took steps to assess and address caregiver barriers prior to the

issuance of the NSTC report on supporting STEM caregivers. For example, in 2021, NIH announced that it would start expanding graduate researcher and postdoc support through childcare subsidies, and officials said that fellows receive paid parental leave.

However, in August 2025, OSTP officials told us that NSTC's Federal Strategic Plan recommendations that did not align with executive branch priorities were no longer in effect. As a result, agencies may not be able to continue efforts to assess or address barriers to STEM participation. Agencies have reported that this uncertainty affected their ability to continue related work. For example, officials from DOE and CDC said efforts were underway to assess barriers to recruitment and retention related to organizational climate, including evaluating long-term career outcomes and challenges faced by underrepresented groups. However, as of March 2025, DOE officials were uncertain whether these efforts would continue. In June 2025, DOE officials confirmed that these initiatives ended. CDC officials confirmed their efforts were discontinued to align with the administration's priorities.

Conclusions

Graduate researchers and postdocs are among the future experts who will support the U.S. innovation economy and national security. The ability to attract and retain these graduate researchers and postdoctoral scholars—in part through compensation and benefits—is essential to maintaining a robust U.S. STEM workforce. However, available data are not sufficient to conduct assessments about the adequacy of their compensation. NCSES within NSF is the principal federal statistical agency related to the STEM workforce and primary source for STEM data. By comprehensively identifying gaps in data needed to fully assess the adequacy of compensation for STEM graduate researchers and postdocs, NSF would be better positioned to provide policymakers with a fuller picture of the financial health and stability of this workforce.

Moreover, as of March 2026, NSF has not engaged an entity to complete a study on graduate student funding as required by the CHIPS and Science Act of 2022, nor has it established a timeline for doing so. Establishing a timeline would help ensure that the study is completed and, in turn, help Congress and other policymakers to better understand the effectiveness of existing funding mechanisms. Completing this study would also provide important information on graduate researcher experiences and outcomes, which could help policymakers determine how best to support this critical segment of the workforce.

Recommendations for Executive Action

The Director of the National Science Foundation should conduct an analysis to determine the gaps in data needed to fully assess the adequacy of monetary compensation and fringe benefits for graduate researchers and postdoctoral scholars and assess the feasibility of collecting these data. (Recommendation 1)

The Director of the National Science Foundation should establish a timeline to undertake an evaluation of NSF's role in supporting graduate researcher education and training through fellowships, traineeships, and other funding models, and of the impact of different funding mechanisms on graduate student experiences and outcomes, and publish the results of this evaluation, as required by the CHIPS and Science Act of 2022. (Recommendation 2)

Agency Comments

We provided a draft of this report to USDA, DOD, the Department of Education, DOE, HHS, NASA, NSF, and OSTP for review and comment. In its comments, reproduced in appendix III, NSF agreed with recommendations 1 and 2, stating

that it would take necessary steps to identify gaps that can inform an understanding of the adequacy of monetary compensation and fringe benefits for graduate researchers and postdocs, and establish a timeline to undertake an evaluation of NSF's role in supporting graduate researcher education and training through fellowships, traineeships, and other funding models. USDA, DOE, HHS, and NASA provided technical comments, which we incorporated as appropriate.

How GAO Did This Study

To inform our work, we selected eight agencies for our review. Six agencies provided over 80 percent of federal funding for science and engineering graduate researchers (USDA, DOD, DOE, HHS, NSF, and NASA) in academic year 2021. Two agencies either collect relevant statistical data or coordinate federal STEM initiatives—OSTP and the Department of Education—and NSF collects relevant statistical data in addition to being one of the six agencies that provides the most federal funding to graduate researchers. We reviewed relevant federal laws and regulations; reviewed documents from selected agencies, along with policies and guidance on setting compensation for graduate researchers and postdocs; and assessed federal data collection efforts.

Our analysis pertained to federally funded STEM graduate researchers—which we defined as doctoral students pursuing research degrees—and postdocs. STEM fields included biology and biomedical sciences, computer and information sciences, engineering, mathematics and statistics, physical sciences, and social sciences, based on our analysis of NCSES's Taxonomy of Disciplines. We did not include health-related fields in our analysis, which NCSES categorizes separately from science and engineering. As a result, our analysis did not include master's students or individuals in health-related fields.

To determine the number and proportion of federally funded STEM graduate researchers and postdocs across selected agencies and fields, we analyzed NSF's NCSES *Survey of Graduate Students and Postdoctorates in Science and Engineering (GSS)* data for academic year 2023, which were the most recent available at the time of reporting. This survey is a census of all U.S. universities granting research-based master's degrees or doctorates in certain fields. We excluded any records that pertained to master's students or individuals in non-STEM fields, then calculated counts by funding source, agency, and research field. GSS data included three graduate researcher funding source categories (federal, nonfederal, and self), plus one additional category for postdocs (unknown). The unknown category does not apply to graduate researchers because institutions can generally track their funding data, which are housed more uniformly within universities, according to NCSES officials. Within the federal funding category, NCSES reported values for each of the six selected agencies that fund the most graduate researchers and postdocs and another category for all other federal entities.

To assess STEM graduate researcher and postdoc compensation, we analyzed a range of sources. First, we requested compensation levels from selected agencies for directly funded STEM graduate researchers from 2014 to 2024 and analyzed available information obtained from these agencies. Such information included monetary compensation levels and typical fringe benefits provided across their direct programs.

Second, we estimated generalizable compensation levels for directly funded STEM postdocs by analyzing the NSF's NCSES *Survey of Doctorate Recipients (SDR)* data. We analyzed data from academic year 2023, which were the most recent available. The SDR is designed to be a generalizable sample of

individuals who earned their degree in certain fields from a U.S. university and includes information on postdoc compensation levels. It does not include information on graduate researchers. We developed a subset of these data to match our scope of federally funded STEM postdocs who received direct compensation by limiting records to those who indicated that their (1) principal role was as a postdoc; (2) research field was within STEM; and (3) principal employer was the U.S. federal government or a specific federal agency. Afterward, we applied a methodology that accounted for SDR's complex survey design to estimate compensation for directly funded STEM postdocs. Our results included median monetary compensation levels and the sample proportion of these individuals whose employers offered fringe benefits such as sponsored health insurance.

Lastly, we estimated nongeneralizable compensation levels for indirectly funded STEM graduate researchers and postdocs by analyzing information obtained from selected universities. We selected the 50 universities with the highest research and development expenditures in academic year 2023, based on NCSES's Higher Education Research and Development Survey. We obtained minimum compensation levels provided to graduate researchers and postdocs at these universities in academic year 2025, based on information from their websites. Then, we contacted universities to confirm the information's accuracy, or to obtain data when not publicly available. Among selected universities, 43 out of 50 (86 percent) responded to our request for information. We took steps to convert salaries to comparable values as needed. For example, for graduate researchers, we converted variable salary periods to 12-month periods. In addition, when academic year 2024 compensation was the most recent information available, we adjusted for inflation using Bureau of Labor Statistics Consumer Price Index data to express the compensation amounts in 2025 dollars. When salary information could not be identified for a university, or there was no minimum amount, we omitted it from our calculation. In total, we included graduate salaries for 48 universities and postdoc salaries for 45 universities.

To assess the reliability of the data we used to determine the number and proportion of federally funded STEM graduate researchers and postdocs and their typical compensation levels, we applied a range of steps across the various sources. Specifically, we reviewed survey methodology and reliability assessments, interviewed agency officials, and conducted electronic data testing—such as checking for duplicate records, missing data, and outliers. For example, GSS and SDR survey documentation stated that NCSES takes steps to minimize error, such as identifying inconsistent or implausible values, contacting university coordinators to correct data as needed (GSS), and using imputation for unit and item nonresponse. Based on our review, we determined these data were sufficiently reliable for approximating the number and proportion of federally funded STEM graduate researchers and postdocs and estimating compensation levels.

We conducted a literature review to identify studies examining how compensation and other factors influence STEM graduate researchers' and postdocs' decisions to pursue or remain in federally funded research positions. To do so, we obtained suggestions for sources from agency officials and other stakeholders. Next, we searched through literature from 2019 through 2024 in the ProQuest, EBSCO, and SCOPUS databases. The search terms used included "graduate student," "postdoctoral scholar or researcher," "STEM compensation," and "wages." To select the most relevant literature, we conducted a structured two-party review of the results. Two analysts independently reviewed abstracts to assess whether the publications addressed key questions related to how compensation or other factors influence STEM

graduate researchers' or postdocs' decisions to pursue or remain in federally funded research positions; conducted full-text reviews to select the most relevant literature and assess appropriateness; and categorized relevant excerpts by theme, defined as a consistent factor influencing these decisions. Discrepancies between the two analysts' assessments were resolved by consensus. This process yielded 10 descriptive publications. These studies relied on, among other things, descriptive or qualitative methods, which limits the extent to which the examples we describe can be generalized.

To identify the federal role in setting compensation; selected agencies' data collection efforts, challenges, and interagency coordination efforts; key factors influencing the decisions to pursue or remain in federally funded research programs; and the status of agency efforts to promote awareness of federal funding activities, we conducted semi-structured interviews with agency officials and 22 stakeholders. Stakeholders included academic researchers, groups representing STEM graduate researchers and postdocs, and groups representing university faculty.³¹ We asked agency officials for information on federal STEM compensation data collection, including the types of data agencies are required to collect, different collection requirements among programs, and any data provided to NCSSES.

To identify agency programs that support graduate researchers and postdocs, we asked agencies to identify relevant programs, reviewed agency websites, and reviewed the NSTC's Committee on STEM progress reports.³² We selected programs based on their support for doctoral degree candidates or postdocs, ability to provide at least one year of stipendiary or other wage-type support, and whether they were active in fiscal year 2025. We provided a list of programs, and the information presented in appendix I to agency officials for review and comment and incorporated feedback as appropriate.

To gather graduate researcher and postdoc insights on factors influencing decisions to pursue or remain in federally funded programs, we used a multi-stage approach that included a questionnaire and small group discussions. To identify key factors affecting STEM graduate researcher and postdoc populations, we reviewed relevant literature. Based on our analysis, we identified 19 factors, which we categorized as factors related to compensation and factors not related to compensation. We grouped these factors according to whether they affected decisions to pursue a program, to remain, or both. Prior to administering our questionnaire, we pretested it with former graduate researchers and postdocs who were employed at GAO and made changes, as appropriate, to clarify our questions. The questionnaire was distributed at two conferences that were attended by STEM graduate researchers and postdocs; and through email recruitment by stakeholder groups. Outreach emphasized voluntary participation in the questionnaire and GAO's status as an independent agency to ensure participants understood that GAO was not affiliated with host organizations. The questionnaire was digitally administered between March and May 2025 and was voluntary.

The questionnaire included screening questions to confirm participant eligibility, Likert-scale items related to factors influencing a participant's decisions to pursue or remain in a federally funded program, and open-ended questions prompting participants to expand on how any of these factors affected their decisions.³³ Participants self-reported their eligibility, which was defined as: (1) current or past roles within the last 5 years as a STEM graduate researcher or postdoc; (2) affiliation with a STEM discipline as defined by NCSSES; and (3) receipt of federal financial compensation either directly (e.g., fellowships, scholarships, traineeships, or grants) or indirectly (e.g., compensation taken from a larger

award to a university).³⁴ Those who did not meet these criteria were not included in the final sample. Respondents had the option to provide demographic information; however, given our use of a non-representative convenience sample, we cannot draw definitive inferences about the extent to which demographic characteristics influence decisions. In total, we received 72 responses that are the basis for our reported results. Because our selection of graduate researchers and postdocs was based on a nongeneralizable sample, the results from these 72 responses cannot be used to make inferences about all graduate researchers and postdocs, but they provide illustrative examples of how identified factors affected participants' decisions to pursue or remain in a federally funded research position, along with additional factors that influenced their decisions.

To obtain deeper insights into questionnaire results, we provided participants with the opportunity to participate in a small group discussion. Of the 13 graduate researchers and 15 postdocs who volunteered to participate in a discussion group, we selected four graduate researchers and four postdocs. We did so based on expressed interest, eligibility as defined within our study scope, and availability. The small group discussion participants were diverse, varying in characteristics such as gender, age, field of study, and source of federal funding. In late May 2025, we held three 90-minute small group discussions: two sessions each with two graduate researchers, and one session with four postdocs. Each group discussion followed a structured format that included reflections on questionnaire responses, discussion of personal experiences, and further insight into how compensation influenced participants' decisions to pursue or remain in their programs. These non-generalizable group discussions allowed us to better contextualize the questionnaire results.

To report on the questionnaire results, we reviewed frequency distributions for the 19 factors and selected five for inclusion in the main body of this report. Factors were selected based on (1) their alignment with audit objectives; (2) the presence of clear and interpretable results, such as high rates of positive or negative ratings relative to those rated "little or no effect"; and (3) whether certain factors reflected overlapping themes. Factors not discussed in the report are presented in appendix II.

We conducted this performance audit from August 2024 to April 2026 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

List of Addressees

The Honorable Zoe Lofgren
Ranking Member
Committee on Science, Space, and Technology
House of Representatives

The Honorable Haley Stevens
Ranking Member
Subcommittee on Research and Technology
Committee on Science, Space, and Technology
House of Representatives

The Honorable Jennifer McClellan
House of Representatives

We are sending copies of this report to the appropriate congressional committees, the Secretaries of Agriculture, Defense, Education, Energy, and Health and Human Services, the National Aeronautics and Space Administration Administrator, the Directors of the National Science Foundation and the Office of Science and Technology Policy, and other interested parties. In addition, the report is available at no charge on the GAO website at <https://www.gao.gov>.

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Appendix I: Agency Programs Supporting Graduate Researchers and Postdocs

Based on our analysis of information from NSTC's Committee on STEM, agency-provided information, and agency websites, we identified 84 programs across six selected agencies—USDA, DOD, DOE, HHS (including NIH), NASA and NSF—that provide funding to STEM graduate researchers and postdocs.³⁵ Of those, 16 programs provided indirect funding, and 68 provided direct funding. In summary, the total number of programs, by agency, are as follows: USDA (6), DOD (7), DOE (13), HHS components (CDC [10], Food and Drug Administration [4], and NIH [12]), NASA (9), and NSF (23). We included programs that provided at least 1 year of funding to graduate researchers pursuing doctoral degrees, or postdocs conducting research. We excluded programs that provided funding for periods under 1 year, or only funded specific activities, such as conference attendance. This information was collected in June through September 2025.

The tables below provide the program's name, a brief description, the support provided (including fringe and monetary benefits, and duration if available), and recipient. The information about the programs may not be directly comparable, as the available information varies. For example, stipend amounts are based on the most recent data available for each program and may not be from the same year or otherwise comparable or may be based on examples available at the time of collection. For some programs, available information did not include a dollar amount of support.

Table 1: U.S. Department of Agriculture (USDA) Programs Supporting Graduate Researchers and Postdoctoral Scholars (Postdocs) Collected in July and September 2025

Name	Description ^a	Stipend and Duration (if available)	Recipient
Agriculture and Food Research Initiative Competitive Grants Program Education and Workforce Development	Provides grants for fundamental and applied research, education, and extension projects in the food and agricultural sciences. Its stated aim is to cultivate future leaders who can solve the 21 st century's emerging agricultural challenges.	Up to \$35,000 per year plus tuition, fees, fringe benefits, supplies, travel, workshops, and publications. (graduate researchers). Up to \$225,000, of which other expenses such as fringe benefits and travel expenditures may not exceed \$60,000 yearly (postdocs). Duration of up to 3 years (graduate researchers) and 2 years (postdocs).	Graduate researchers and postdocs.
Agricultural Research Service Research Participation Program	Provides fellowships for research and development activities.	Stipend is based on the participant's education level. Some may receive relocation expenses, travel, or health insurance. Duration of up to 1 year with the possibility for renewal.	Graduate researchers and postdocs.
Animal and Plant Health Inspection Service Research Participation Program	Provides fellowships to collaborate with Animal and Plant Health Inspection Service professionals to address the national challenges and establish long-term relationships.	Stipend determined by the Animal and Plant Health Inspection Service—at least \$35,000 per year. Some may receive relocation expenses, travel, or health insurance. Duration of up to 1 year with the possibility of renewal.	Graduate researchers and postdocs.
Food Safety and Inspection Service Food Safety Fellowship Program	Provides opportunities to work on projects of interest to the Food Safety and Inspection Service.	21,600 per year for a part-time appointment, plus up to \$6,000 for travel or laboratory supplies.	Graduate Researchers.
Forest Service Research Participation Program	Provides fellowships to work with Forest Service professionals to address challenges and establish long-term relationships and connections.	\$72,000 per year but may vary depending on experience and education level. Some may receive relocation, travel, or health insurance stipends. Duration of 1 year with the possibility for renewal.	Graduate researchers and postdocs.
Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowship	Provides fellowship programs at eligible universities meeting the national need to develop scientific and professional expertise in the food and agricultural sciences. Indirect funding opportunity—universities apply.	\$24,500 per year plus a cost-of-education allowance. Duration of up to 3 years.	Graduate researchers.

Source: GAO analysis of agency and contractor information. | GAO-26-107757

^aThis information was collected in July and September 2025. Unless otherwise noted, all programs are considered direct funding opportunities. We consider a program that a graduate researcher or postdoc directly applies for to be a direct funding program, even if funding is distributed to a university which then provides it to a student.

Table 2: Department of Defense (DOD) Programs Supporting Graduate Researchers and Postdoctoral Scholars (Postdocs) Collected in July and September 2025

Name	Description ^a	Stipend and Duration (if available)	Recipient
Air Force Science and Technology Fellowship Program	Provides fellowships for scientists and engineers to undertake innovative research projects intended to advance the Air Force's technological capabilities. Promotes idea and knowledge exchange between the Air Force and scientific community.	\$95,000 in the first year, then increasing, plus health insurance and travel. Some may receive relocation expenses.	Postdocs.
Army Educational Outreach Program	Provide fellowships for graduate researchers and postdocs in U.S. Army Research Laboratories and Centers.	Stipend that can vary by location, experience, education level, duration, and research field. Some may receive health insurance, travel, and tuition reimbursement. Duration of up to multiple years.	Graduate researchers and postdocs.
DOD Cyber Service Academy	Provides scholarships to individuals pursuing a degree in a cyber-related field in exchange for a period of full-time civilian employment with the DOD. Its goal is to prepare the DOD workforce to combat cyber threats to its information system and networks.	\$34,000 plus tuition, fees, books, a laptop, and travel support. Required to work for DOD for 1 year for each year of support received.	Graduate researchers.
Oak Ridge Institute for Science and Education Research Participation Program at the U.S. Department of Defense	Provides fellowships to support the development of the next generation of researchers and scientists.	Stipend determined by DOD based on education level—at least \$40,800 per year. Some may receive relocation, travel, or health insurance. Duration of up to 1-year with the possibility for renewal.	Graduate researchers and postdocs.
Science, Mathematics, and Research for Transformation (SMART) Scholarship-for-Service Program	Provides merit-based scholarships for aspiring science, technology, engineering, and mathematics (STEM) leaders.	At least \$30,000 per year plus tuition, books and health allowance, and summer internships. Required to work for DOD for 1 year for every year of support received.	Graduate researchers.
STEM National Defense Education Program	Provides funding for STEM scholarship programs, among other activities to provide solutions intended to establish and maintain a STEM talent pool with an aptitude for innovation and technical agility to sustain DOD's competitive edge. Indirect funding opportunity—groups such as industry, universities, and nonprofit institutions apply.	Set by the institution.	Graduate researchers.

National Defense Science and Engineering Graduate Fellowship Program	Provides fellowships to increase the number of U.S. Citizens or nationals trained in science and engineering disciplines of DOD relevance.	\$43,200 per year plus tuition and fees, a \$5,000 travel allowance, and up to \$1600 for health insurance. Duration of 3 years.	Graduate researchers.
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Source: GAO analysis of agency and National Academies information. | GAO-26-107757

^aThis information was collected in July and September 2025. Unless otherwise noted, all programs are considered direct funding opportunities. We consider a program that a graduate researcher or postdoc directly applies for to be a direct funding program, even if funding is distributed to a university which then provides it to a student.

Table 3: Department of Energy (DOE) Programs Supporting Graduate Researchers and Postdoctoral Scholars (Postdocs) Collected in July and September 2025

Name	Description ^a	Stipend and Duration (if available)	Recipient
Computational Science Graduate Fellowship	Provides fellowships in fields that use artificial intelligence and high-performance computing to solve complex science and engineering problems.	\$45,000 per year plus tuition and fees, and an annual professional development allowance. Duration of up to 4 years.	Graduate researchers.
DOE Fellows at Florida International University	Provides fellowships, partnering with academic, government, and DOE contractor organizations to mentor future scientists and engineers in technology research, development, and deployment to address environmental cleanup challenges. Indirect funding opportunity open to students at Florida International University.	Stipend, summer internships at DOE sites, and tuition.	Graduate Researchers.
DOE Fusion Energy Sciences Postdoctoral Research Program	Provides fellowships in fusion and plasma science and technology.	\$90,000 per year plus health insurance supplement, travel allowance, and access to advanced equipment and facilities. Duration of up to 2 years.	Postdocs.
Energy Efficiency and Renewable Energy Science, Technology, and Policy	Provides an opportunity for scientists and engineers to participate in policy-related projects at DOE's Office of Energy Efficiency and Renewable Energy.	Duration of 1 year.	Postdocs.
Graduate Education for Minority Students (GEM) Fellowship	Provides fellowships for individuals to enter industry at the graduate level in areas such as research and development, and product development.	At least \$16,000 per year plus tuition and fees. Additional stipend is expected from the university to bring the stipend up to the funding level provided to other funded individuals at the institution. Duration of up to 5 years.	Graduate researchers.
National Energy Technology Laboratory Postdoctoral Research Fellowship Program	Provides fellowships for conducting research with a National Energy Technology Laboratory scientist, collaborating on energy-related research.	At least \$89,832 per year. Duration of up to 5 years.	Postdocs.

Name	Description ^a	Stipend and Duration (if available)	Recipient
National Nuclear Security Administration (NNSA) Graduate Fellowship Program	Provides fellowships for real-world experience in national security and nonproliferation, among other training.	\$67,600 per year (graduate researchers).	Graduate researchers and postdocs.
		\$79,500 per year (postdocs).	
		Hiring incentive, travel and training allotment, paid vacation, and tuition reimbursement. Duration of 1 year.	
NNSA Impact Internship Program	Provides internships for individuals enrolled at Minority Serving Institutions to pursue degrees in critical science, engineering, technology, mathematics, or other disciplines.	\$1,150 per week during the summer plus a prorated stipend of 25 to 80 percent during the academic year based on hours supported. Duration of up to 1 year.	Graduate researchers.
NNSA Stewardship Science Graduate Fellowship	Provides fellowships to pursue degrees in fields of study that solve complex science and engineering problems.	\$45,000 per year plus tuition and an annual academic allowance. Duration of up to 4 years.	Graduate researchers.
Office of Science Graduate Student Research Program	Provides awards to conduct research in collaboration with a DOE National Laboratory scientist.	Up to \$43,200 per year while at the host facility plus travel expenses. Duration of up to 1 year.	Graduate researchers.
Rickover Graduate Fellowship in Nuclear Engineering	Provides fellowships to meet DOE's Naval Reactors Division's employment needs. Targets those studying reactor physics, nuclear materials science and engineering, and radiation shielding, among other areas.	\$45,600 per year plus tuition and fees and one fellowship assistance award to help cover equipment costs. Some may receive a health insurance stipend. Required to work for the Naval Nuclear Laboratory for at least 1 year upon graduation.	Graduate researchers.
Science, Technology, and Policy Program	Provides fellowships to receive hands-on experience that provides an understanding of DOE's culture, missions, and operations.	Duration of 1 year.	Postdocs.
University Nuclear Leadership Program Nuclear Energy Graduate Fellowships	Provides fellowships in fields relevant to the mission of DOE's Office of Nuclear Energy.	\$40,000 per year plus education expenses and travel. Duration of 3 years.	Graduate researchers

Source: GAO analysis of agency and contractor information. | GAO-26-107757

^aThis information was collected in July and September 2025. Unless otherwise noted, all programs are considered direct funding opportunities. We consider a program that a graduate researcher or postdoc directly applies for to be a direct funding program, even if funding is distributed to a university which then provides it to a student.

Table 4: Health and Human Services Centers for Disease Control and Prevention (CDC) Programs Supporting Graduate Researchers and Postdoctoral Scholars (Postdocs) Collected in July 2025

Name	Description ^a	Stipend and Duration (if available)	Recipient
Association of Public Health Laboratories Public Health Laboratory Fellowships	Provides fellowships for public health laboratory program areas, including bioinformatics, biosafety and biosecurity, emergency preparedness and response, and environmental health, among others.	Stipends calculated based on factors such as education and location, plus a health insurance allowance, and relocation reimbursement. Duration of up to 2 years.	Postdocs.
Council of State and Territorial Epidemiologists Applied Epidemiology Fellowship	Provides fellowships for those in epidemiology or a related field who are interested in public health practice at the state, local, territorial, or tribal levels.	\$55,505.84 per year (graduate researchers). \$70,905.90 per year (postdocs). Duration of 2 years.	Graduate researchers and postdocs.
Council of State and Territorial Epidemiologists Applied Public Health Informatics Fellowship	Provides fellowships for careers in public health informatics at state and local health departments.	\$70,905.90 per year	Postdocs.
Epidemic Intelligence Service	Provides training for disease detectives to collect, analyze, and interpret data for evidence-based public health action.	At least \$80,754 per year plus health insurance, leave, and retirement. Duration of 2 years.	Postdocs.
Laboratory Leadership Service	Provides a service-learning program focusing on applied public health laboratory research, laboratory operations, quality management, biosafety, bioinformatics, advanced communications, and leadership training.	\$80,754 per year plus retirement, health insurance, and vacation leave. Duration of 2 years.	Postdocs.
Public Health Associate Program for Recent Graduates	Provides skills to enter the public health workforce through field experience and structured learning.	\$42,679 per year, then increasing. Duration of 2 years.	Postdocs.
Association of Schools and Programs in Public Health Public Health Fellowship Program	Provides fellowships for recent graduates holding doctoral degrees in public health.	Duration of up to 3 years.	Postdocs.
Public Health Informatics Fellowship Program	Provides on-the-job training to apply expertise in computer science, data analytics, and data science to address public health needs.	\$80,754 per year plus health insurance and leave. Duration of 2 years.	Postdocs.
Oak Ridge Institute for Science and Education Research Participation Program	Provides opportunities for participation in project-specific CDC research and developmental activities.	Stipend determined by CDC and based on the participant's education level. Some may receive relocation, travel, or a health insurance stipend. Duration of 1 year with the possibility of renewal.	Graduate researchers and postdocs.
Steven M. Teutsch Prevention Effectiveness Fellowship	Provides fellowships addressing demand for quantitative policy analysis, health economics-based inquiry, integrative health services research, and rigorous decision modeling.	\$80,754 per year plus health insurance and leave. Duration of 2 years.	Postdocs.

Source: GAO analysis of agency and contractor information. | GAO-26-107757

^aThis information was collected in July 2025. Unless otherwise noted, all programs are considered direct funding opportunities. We consider a program that a graduate researcher or postdoc directly applies for to be a direct funding program, even if funding is distributed to a university which then provides it to a student.

Table 5: Health and Human Services Food and Drug Administration (FDA) Programs Supporting Graduate Researchers and Postdoctoral Scholars (Postdocs) Collected in July 2025

Name	Description ^a	Stipend and Duration (if available)	Recipient
Research and Science Traineeship Program	Provides traineeships to those with a background or interest in the natural sciences.	Stipend based on educational attainment, research area, location, and experience. Duration of up to 5 years.	Graduate researchers and postdocs.
Research Participation Program	Provides opportunities to participate in project-specific FDA research and developmental activities.	Stipend determined by FDA and based on the participant's educational level. Some may receive relocation, travel, or a health insurance stipend.	Graduate researchers and postdocs.
Translational Science Interagency Fellowship	Provides fellowships at the National Center for Advancing Translational Sciences and FDA to build awareness of regulations in the early stages of medical product development.	Duration of 3 years.	Postdocs.
Visiting Scientist Programs	Provides funding for foreign nationals to work on problems of mutual interest.	At least \$52,205 per year.	Postdocs.

Source: GAO analysis of agency and contractor information. | GAO-26-107757

^aThis information was collected in July 2025. Unless otherwise noted, all programs are considered direct funding opportunities. We consider a program that a graduate researcher or postdoc directly applies for to be a direct funding program, even if funding is distributed to a university which then provides it to a student.

Table 6: Health and Human Services National Institutes of Health (NIH) Programs Supporting Graduate Researchers and Postdoctoral Scholars (Postdocs) Collected in July and September 2025

Name	Description ^a	Stipend and Duration (if available)	Recipient
National Cancer Institute Predoctoral to Postdoctoral Fellow Transition Award (F99/K00)	Provides fellowships for those transitioning from graduate research training to mentored, cancer-focused research positions.	\$28,788 per year (graduate researcher). \$65,000 per year (postdocs). Duration of up to 6 years.	Graduate researchers and postdocs.
Pathway to Independence Awards (K99/R00)	Provides funding to those seeking mentored research career development that will facilitate their transition to an independent, tenure-track or equivalent faculty position.	\$75,000 per year. Duration of up to 5 years, including a research project grant of up to 3 years, contingent on securing a tenure track faculty position.	Postdocs
Linked Training Award (TL1)	Provides funding to universities to support research training experiences for those interested in pursuing research careers in multi-disciplinary clinical and translational science. Indirect funding opportunity—universities apply.	\$28,788 per year (graduate researchers). At least \$62,232 per year (postdocs).	Graduate researchers. Postdocs.

Institutional National Research Service Award (T32)	Provides funding to institutions to make National Research Service Awards to individuals in opportunities in specified shortage areas. Indirect funding opportunity—universities apply.	\$28,788 per year (graduate researchers). At least \$62,232 per year (postdocs).	Graduate researchers. Postdocs.
Interdisciplinary Research Training Award (T90)	Provides funding for comprehensive research training programs by capitalizing on the infrastructure of existing multidisciplinary and interdisciplinary programs. Indirect funding opportunity—universities apply.	\$28,788 per year (graduate researchers). At least \$62,232 per year (postdocs).	Graduate researchers. Postdocs.
Interdisciplinary Regular Research Training Award (R90)	Provides funding for comprehensive research training programs by capitalizing on the infrastructure of existing multidisciplinary and interdisciplinary research programs. Specifically for foreign nationals. Indirect funding opportunity—universities apply.	Set by the institution.	Graduate researchers. Postdocs.
Clinical Scientist Institutional Career Development Award (K12)	Provides institutional career development awards to prepare newly trained clinicians for independent research careers and facilitate their transition to more advanced compensation mechanisms. Indirect funding opportunity—institutions apply.	Stipend set by the agency.	Postdocs.
Ruth L. Kirschstein National Research Service Award Individual Fellowship for Predoctoral Dual-Degree Training Programs (F30)	Provides fellowships for researchers in dual-degree training programs—such as MD PhD programs—who intend to pursue careers as physician- or clinician-scientists.	\$28,788 per year plus tuition, fees, and an institutional allowance to help defray expenses such as health insurance, research supplies, equipment, books, and travel. Duration of up to 6 years.	Graduate researchers.
Predoctoral Individual National Research Service Award (F31)	Provides fellowships in specified health and health-related areas leading to the completion of an advanced research degree.	\$28,788 per year. Duration of up to 5 or 6 years, depending on type of degree received.	Graduate researchers.
Postdoctoral Individual National Research Service Award (F32)	Provides fellowships to individuals to conduct research in specified health-related areas.	At least \$62,232 per year. Duration of up to 3 years.	Postdocs.
Intramural Research Training Award/ Cancer Research Training Award/ Visiting Fellow Programs	Provides funding to perform biomedical research within NIH's Intramural Research Program.	At least \$46,100 (graduate researchers). At least \$67,200 (postdocs). Duration depends on the program type and eligibility for renewal.	Graduate researchers and postdocs.

Participation Programs	Provides funding to participate in project-specific NIH research and developmental activities.	Stipends are determined by NIH and based on education level. Some may also award relocation, travel, or a health insurance stipend. Duration of 1 year with the possibility of renewal.	Graduate researchers and postdocs.
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Source: GAO analysis of agency and contractor information. | GAO-26-107757

^aThis information was collected in July and September 2025. Unless otherwise noted, all programs are considered direct funding opportunities. We consider a program that a graduate researcher or postdoc directly applies for to be a direct funding program, even if funding is distributed to a university which then provides it to a student.

Table 7: National Aeronautics and Space Administration (NASA) Programs Supporting Graduate Researchers and Postdoctoral Scholars (Postdocs) Collected in June and September 2025

Name	Description ^a	Stipend and Duration (if available)	Recipient
Advanced Air Vehicles Program Fellowship Opportunities	Provides fellowships for training and development, while meeting Advanced Air Vehicles Program priorities. Awards are focused on innovation and the generation of measurable research results that contribute to NASA science and technology goals. Indirect funding opportunity—universities apply.	\$40,000 per year plus tuition offset and fees, and health insurance stipend. Duration of 4 years with an optional 1 year renewal.	Graduate researchers.
Future Investigators in NASA Earth and Space Science Technology	Provides funding for graduate researcher-designed and performed research projects that contribute to NASA's Science Mission Directorate's science, technology, and exploration goals. Graduate students must be the primary author on the grant with supervision from a principal investigator.	Up to \$50,000 per year (suggested stipend of \$40,000). Duration of up to 3 years.	Graduate researchers.
Hubble Fellowship Program	Provides fellowships for conducting independent research which contributes to NASA Astrophysics using theory, observation, experimentation, or instrument development.	Health insurance, relocation, travel, and other direct research costs. Duration of up to 3 years.	Postdocs.
Jet Propulsion Laboratory Postdoctoral Program	Provides funding to work directly with a Jet Propulsion Laboratory advisor on a research topic of mutual interest.	At least \$82,180 but varies by position plus employment benefits and relocation expenses. Duration of 1 year with the possibility of renewal.	Postdocs.

Minority University Research and Education Project	Provides grants to Minority Serving Institutions to strengthen research, academic, and technological capacities by making strategic investments to build institutional capacity and engage students. Indirect funding opportunity—universities apply.	Duration of 3 years.	Graduate researchers.
NASA Postdoctoral Program	Provides funding to work with NASA scientists, technologists, and engineers at NASA centers and the Jet Propulsion Laboratory to advance the agency's missions.	Stipend determined by location, plus health insurance. Duration of up to 3 years.	Postdocs.
NASA Space Technology Graduate Research Opportunities	Provides funding for research with the potential to contribute to NASA's goal of creating innovative new space technologies. Graduate researchers must be the primary author on the grant with supervision from a principal investigator.	Up to \$40,000 per year plus health insurance, tuition and fees, and other research, education, and travel costs. Duration of up to 4 years.	Graduate researchers.
Translational Research Institute for Space Health	Provides funding for researchers undertaking studies and developing technologies to help keep astronauts safe and healthy on deep space missions to the Moon, Mars, and beyond.	Duration of 2 years.	Postdocs.
University Leadership Initiative	Provides funding for U.S. universities to form teams and develop research supporting NASA's Aeronautics Research Mission Directorate and its Strategic Implementation Plan. Indirect funding opportunity—universities apply.	Duration of 3 years.	Graduate researchers and postdocs.

Source: GAO analysis of agency and contractor information. | GAO-26-107757

^aThis information was collected in June and September 2025. Unless otherwise noted, all programs are considered direct funding opportunities. We consider a program that a graduate researcher or postdoc directly applies for to be a direct funding program, even if funding is distributed to a university which then provides it to a student.

Table 8: National Science Foundation (NSF) Programs Supporting Graduate Researchers and Postdoctoral Scholars (Postdocs) Collected in August and September 2025

Name	Description ^a	Stipend and Duration (if available)	Recipient
Astronomy and Astrophysics Postdoctoral Fellowships	Provides fellowships to carry out an independent research program, engaging in observational, instrumental, theoretical, laboratory, or archival data research in astronomy and astrophysics.	\$75,000 per year plus an allowance of \$35,000 to cover research and education related costs. Duration of up to 3 years.	Postdocs.
Atmospheric and Geospace Sciences Postdoctoral Research Fellowships	Provides fellowships to carry out independent research addressing questions within the scope of the Division of Atmospheric and Geospace Sciences.	\$70,000 in the first year, then increasing, plus a \$30,000 allowance to cover overhead and fringe benefits. Duration of up to 2 years.	Postdocs.
Centers of Research Excellence in Science and Technology (CREST) – Postdoctoral Research Program	Provides funding for research experience and training for early career scientists at active CREST centers.	\$70,000 per year plus a \$15,000 allowance to cover research-related costs. Duration of up to 2 years.	Postdocs.
Computer and Information Science and Engineering Graduate Fellowships	Provides fellowships to increase the number and diversity of domestic graduate researchers pursuing careers in computer and information science and engineering.	\$37,000 per year plus a \$16,000 education allowance. Duration of 3 years.	Graduate researchers.
CyberCorps Scholarship for Service	Provides funding to train information technology professionals, industrial control system security professionals, and security managers to meet cybersecurity needs.	\$37,000 per year plus tuition, fees, and a professional allowance. Duration of up to 3 years. Required to work for the government 1 year for every year of funding received.	Graduate researchers.
Division of Chemistry Research Facilities and Institutes	Provides funding for facilities and institutes housing advanced chemical research instrumentation. Indirect funding opportunity—universities apply.	Set by the university.	Graduate researchers and postdocs.
Earth Sciences Postdoctoral Fellowships	Provides fellowships to improve the understanding of the structure, composition, and evolution of Earth, the evolutionary history of the life it supports, and the processes that govern the formation and behavior of Earth materials.	\$61,163 per year, then increasing, plus locality pay and research and professional development expenses. Duration of up to 2 years.	Postdocs.
eFellows	Provides fellowships placing recent engineering field doctorates in university research positions.	\$75,000 per year plus benefits, and up to \$3,000 in travel expenses. Duration of 2 years.	Postdocs.

Name	Description ^a	Stipend and Duration (if available)	Recipient
Established Program to Stimulate Competitive Research (EPSCoR) Graduate Fellowship Program	Provides fellowships to advance graduate talent, recruitment, and retention at graduate institutions in eligible EPSCoR states and territories. Presents opportunities for graduate researchers who received a Graduate Research Fellowship Program honorable mention within the last 3 years.	\$37,000 per year plus a \$16,000 education allowance. Duration of 3 years during a 5 year period.	Graduate researchers.
Graduate Research Fellowship Program	Provides fellowships to those who are pursuing full-time research-based degrees in science, technology, engineering, and mathematics (STEM).	\$37,000 per year plus a \$16,000 education allowance. Duration of 3 years during a 5 year period.	Graduate researchers.
Innovative Postdoctoral Entrepreneurial Research Fellowship	Provides fellowships to early career STEM researchers from underrepresented groups to participate in entrepreneurial activities at startup companies.	\$78,000 per year plus relocation, travel, and optional health and life insurance. Duration of 1 year.	Postdocs.
Louis Stokes Alliances for Minority Participation	Provides funding for groups of universities to work together to diversify the nation's STEM workforce by increasing the number of STEM degrees awarded to minority populations. Indirect funding opportunity—university partnerships apply.	Duration of 2 years.	Graduate researchers.
Mathematical and Physical Sciences Ascending Postdoctoral Research Fellowships	Provides fellowships for individuals performing mathematics or physical science research. Funds those in research environments that will have the greatest effect on their future scientific development and facilitate their transition to university faculty.	Up to \$70,000 per year plus \$30,000 for research activities and fringe benefits. Duration of up to 3 years.	Postdocs.
Mathematical Sciences Postdoctoral Research Fellowships	Provides fellowships for future leaders in mathematics and statistics by facilitating their participation in research that will have the greatest effect on their future scientific development.	Up to \$70,000 per year plus \$50,000 for research and education activities plus fringe benefits Duration of 2 years.	Postdocs.
National Center for Science and Engineering Statistics Research Ambassadors Program	Provides support for the mission of the National Science and Engineering Statistics.	Stipend determined based on the participant's academic and professional background, plus health insurance and relocation allowance. Duration of 1 year with the possibility of renewal.	Postdocs.
Ocean Sciences Postdoctoral Research Fellowships	Provides fellowships for educational and interdisciplinary ocean science research opportunities.	\$75,000 in the first year, then increasing, plus up to \$15,000 research and training allowance. Duration of 2 years.	Postdocs.

Name	Description ^a	Stipend and Duration (if available)	Recipient
Office of Polar Programs Postdoctoral Research Fellowships	Provides fellowships for educational and interdisciplinary polar research opportunities.	\$72,000 in the first year, then increasing, plus a \$15,000 research and training allowance. Duration of up to 2 years.	Postdocs.
Postdoctoral Research Fellowships in Biology	Provides fellowships for research in selected areas to develop a biology workforce.	\$70,000 per year plus a \$20,000 research and training allowance. Duration of 3 years.	Postdocs.
Research Traineeship Program	Provides traineeships for STEM researchers in high priority interdisciplinary areas through a comprehensive traineeship model that is aligned with changing workforce and research needs. Indirect funding opportunity—universities apply.	At least \$37,000 per year plus \$16,000 cost of education allowance. Duration of at least 1 year.	Graduate researchers.
Scholarships in STEM Program	Provides funding for academically talented, low-income students to pursue STEM careers to increase the number who graduate with an eligible degree and contribute to the American innovation economy. Indirect funding opportunity—universities apply.	Up to \$20,000 per year. Duration of up to 6 years.	Graduate researchers.
Social, Behavioral and Economic Sciences Postdoctoral Research Fellowships	Provides fellowships in the social, behavioral and economic sciences; and enhances underrepresented group participation in science and engineering.	\$65,000 per year plus a \$15,000 fellowship allowance. Duration of up to 2 years.	Postdocs.
STEM Education Individual Postdoctoral Research Fellowships	Provides fellowships to broaden the pool of researchers advancing STEM learning and learning environment knowledge, broadening participation in STEM fields.	\$70,000 per year plus up to \$15,000 for expenses. Duration of up to 2 years.	Postdocs.
STEM Education Organizational Postdoctoral Research Fellowships	Provide fellowships to organizations as they develop a STEM education fellowship project and support a cohort of fellows. Indirect funding opportunity—universities and non-profit organizations apply.	\$70,000 per year. Duration of 2 years.	Postdocs.

Source: GAO analysis of agency and contractor information. | GAO-26-107757

^aThis information was collected in August and September 2025. Unless otherwise noted, all programs are considered direct funding opportunities. For reporting purposes, we consider a program that a graduate researcher or postdoc directly applies for to be a direct funding program, even if funding is distributed to a university which then provides it to a student.

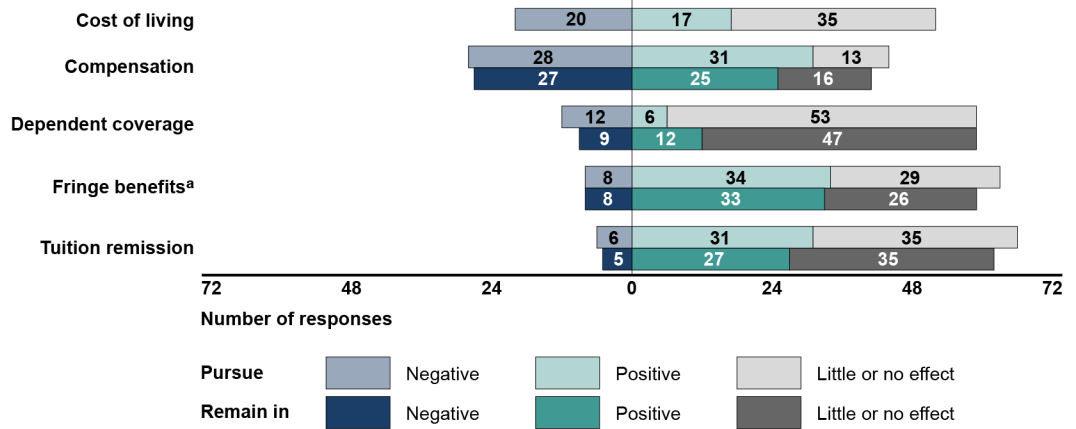
Appendix II: Summary of Factors Affecting STEM Graduate Researchers' and Postdocs' Decisions to Pursue or Remain in Federally Funded Research Programs

To obtain a non-generalizable sample of perspectives on relevant factors when considering a position in STEM research, we distributed a questionnaire to STEM graduate researchers and postdocs that asked how selected compensation-related factors and factors not related to compensation influenced their decision to pursue or remain in a federally funded research program. A combined total of 72 graduate researchers and postdocs provided input on the factors that influenced their decisions. In addition, insights from small group discussions with questionnaire participants, stakeholder interviews and literature provided contextual support for the potential positive or negative effects of these factors.³⁶

Factors Related to Compensation

In conducting our questionnaire, we asked respondents to rate the effects that specific compensation-related factors, such as tuition remission and fringe benefits, have on graduate researcher and postdoc decisions to pursue or remain in a STEM program. See figure 5 for information on how graduate researchers and postdocs ranked the effects of compensation-related factors on their decisions to pursue or remain in a program.

Figure 5: Graduate Researcher and Postdoc Respondents' Views on How Compensation Related Factors Effect Decisions to Pursue or Remain in a STEM Program Collected Between March and May 2025



Source: GAO analysis of questionnaire data. | GAO-26-107757

Note: The response totals for each factor may not sum to 72, as some respondents chose not to rate certain factors. A "negative effect" means the factor made respondents less likely to pursue or remain in a federally funded research program, and a "positive effect" means the factor made them more likely to do so or continue doing so.

^aFringe benefits include costs of leave, employee insurance, pensions, and unemployment benefits.

Tuition remission. Fewer than half of the respondents viewed tuition remission—waiving or significantly reducing the cost of tuition—as having a positive influence on decisions to pursue or remain in a program, and nearly half of the respondents indicated that the factor had little to no effect on their decisions.³⁷ A respondent explained that they only considered programs that offered this benefit when choosing where to enroll. According to literature we reviewed, tuition remission supports doctoral degree completion and makes graduate education more accessible.³⁸

Fringe benefits. Fringe benefits, such as costs of leave, employee insurance, pensions, and unemployment benefits, received positive ratings related to respondents' decisions to pursue or remain in a program from fewer than half of the respondents. Four participants from the small group discussions expressed views that access to these benefits was a key deciding factor in accepting a position. However, one respondent noted that access to such benefits could be minimal. For example, another respondent said, "I have an 11-month-old child and do not have any childcare through my university and so that's a huge cost and challenge."

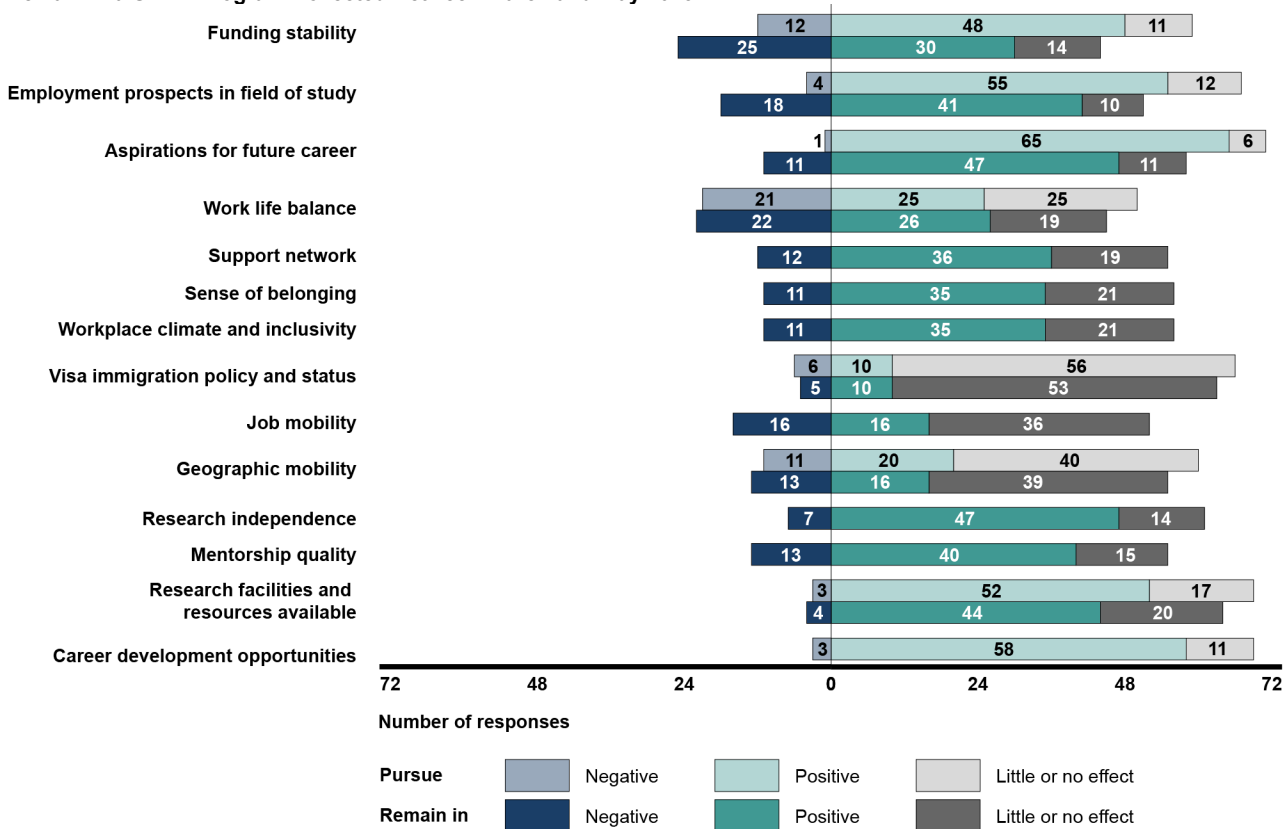
According to a stakeholder, the lack of leave benefits, such as paid parental leave, is a recruitment challenge in the postdoc environment, particularly for women. Graduate researchers may also be ineligible for certain benefits, which makes it difficult for them to manage professional and family responsibilities, according to a stakeholder. For example, they may not receive Family and Medical Leave Act (FMLA) benefits—such as receiving up to 12 weeks of unpaid leave for the birth and care of a newborn child, the care of a family member with a serious health condition, or their own serious health condition—because paid work-hour limits at universities may not meet the FMLA threshold.³⁹ In some cases, universities may help alleviate this concern by providing health care packages for graduate researchers. For example, one graduate researcher described their institution as having a very good health care package for its graduate researchers, which they considered a positive factor for attending that university.

Dependent coverage. More than half of the respondents cited dependent coverage as having little to no effect on their decision to pursue or remain in a program.⁴⁰ However, one respondent recognized the hardships faced by peers who do rely on such support. This respondent said they did not have dependents but noted that many of their coworkers had to consider those concerns when their institution tried to take away health care benefits. According to literature we reviewed, graduate researchers with families can face additional financial responsibilities as they may need to provide health insurance for family members.⁴¹ One respondent described not being able to afford to put their partner on their health insurance, which affected their finances and the partner's career options.

Factors Not Related to Compensation

Questionnaire respondents described the effect of factors not related to compensation had on graduate researcher and postdoc decisions to pursue or remain in a program. See figure 6 for more information on how participants viewed the effects of such factors on graduate researcher and postdoc career decisions. Factors such as career development opportunities, mentorship quality, research independence, work climate and inclusivity, and work-life balance were cited as important influences.

Figure 6: Graduate Researcher and Postdoc Respondents' Views on How Factors Not Related to Compensation Effect Decisions to Pursue or Remain in a STEM Program Collected Between March and May 2025



Source: GAO analysis of questionnaire data. | GAO-26-107757

Note: The response totals for each factor may not sum to 72, as some respondents chose not to rate certain factors. A "negative effect" means the factor made respondents less likely to pursue or remain in a federally funded research program, and a "positive effect" means the factor made them more likely to do so or continue doing so.

Career development opportunities. For decisions to pursue a program, more than half of the respondents rated career development opportunities and research facilities and program resources similarly positively. For decisions to remain in a program, more than half of the respondents rated research facilities

and resources, mentorship quality, and research independence and rated these factors positively. Access to career development opportunities and strong mentorship positively affect decisions to pursue or remain in research programs, according to stakeholders; however, a few respondents noted that such supports were sometimes inaccessible due to laboratory demands or inconsistent advisor involvement. Access to program resources, such as equipment and infrastructure, was also highlighted by several respondents as essential. Research independence was particularly valued, as examples from several respondents described it as a motivating factor, while one respondent expressed frustration with limited autonomy, which may lead to program attrition.

Mobility and immigration.⁴² Exactly half of respondents reported that job mobility had little or no effect on their decisions to remain in their positions, while more than half reported the same for geographic mobility and immigration status. More than half reported that geographic mobility and immigration policy also had little or no effect on decisions to pursue or remain in their positions. One respondent highlighted that university researchers may benefit from more accessible visa options, such as cap-exempt visa programs for nonprofits, making it easier for universities to retain foreign national postdocs.

Stakeholders highlighted both opportunities and barriers tied to mobility and immigration-related factors. According to two stakeholders, geographic mobility can enhance access to career opportunities, but it can be limited by family obligations, and it can be challenging to obtain funding if a researcher cannot relocate. Another stakeholder stated that many postdocs are foreign nationals and geographic factors, such as where they can conduct research or their ability to remain in the country when moving from one position to another, may also influence where they choose to conduct research.

Work climate and inclusivity. Nearly half of the respondents indicated that their sense of belonging, and work climate and inclusivity had a positive impact on their decisions to remain in a program, and exactly half said the same for support network. Fewer than half viewed these factors as having little or no effect on their decisions. Examples from several respondents described support networks, sense of belonging, and work climate as important to their decision to remain.

According to literature, a strong sense of belonging is particularly important for underrepresented groups because it is a contributor to success and retention.⁴³ According to literature we reviewed, a lack of psychological safety in the research environment can drive attrition.⁴⁴ Further, two stakeholders also noted the significance of this factor, with one highlighting the importance for students to see successful, visible, and accessible peers.

Work-life balance. Fewer than half of the respondents viewed work-life balance positively, and views were mixed among the rest with fewer than half viewing it negatively or as having little or no effect on their decision to pursue or remain in a program. Several respondents who viewed work-life balance positively said they prioritized this factor when choosing a research program and cited efforts to create flexibility. However, examples from a few respondents included long hours and a lack of support as key work-life balance challenges. One stakeholder noted that personal factors, such as marriage and children, can impact retention, as postdocs with debt and expectations to publish have little capacity to start a family.

Appendix III: Agency Comments



U.S. National Science Foundation
Office of the Director

March 19, 2026

Hilary Benedict
Director
Science, Technology Assessment, and Analytics
U.S. Government Accountability Office
441 G Street NW
Washington, DC 20226

Dear Ms. Benedict:

Thank you for the opportunity to review and provide comments on the Government Accountability Office (GAO) draft report, *STEM: Additional Data Needed on Graduate Researcher and Postdoctoral Scholar Compensation* (GAO-26-107757). The U.S. National Science Foundation (NSF) values the GAO staff's professionalism and constructive interactions, during this GAO engagement.

NSF agrees with the GAO's recommendations and will take necessary steps as noted, identifying the constructs (i.e., gaps) that can inform an understanding of the adequacy of monetary compensation and fringe benefits for graduate researchers and postdoctoral scholars and assess whether these constructs can be measured. To this end, NSF will establish a timeline to undertake an evaluation of NSF's role in supporting graduate researcher education and training through fellowships, traineeships, and other funding models.

In summary, NSF appreciates the opportunity to review and comment on the draft report. Contact Veronica Shelley via e-mail (vshelley@nsf.gov) and/or telephone (703-292-4384), if you have any questions and/or require additional information.

Look forward to working with you again in the future.

Sincerely,

A handwritten signature in blue ink that reads 'Brian Stone'.

Brian Stone
Chief of Staff
Performing the Duties of the NSF Director

www.NSF.gov

Endnotes

¹According to NSF and NIH, postdocs are defined as individuals who have received a doctoral or equivalent degree and are engaged in a temporary and defined period of mentored advanced training to enhance the professional skills and research independence needed to pursue their chosen career path. We define graduate researchers as doctoral students pursuing research degrees.

²For reporting purposes, we use the term universities to represent all U.S. academic institutions granting research-based master's degrees or doctorates in science, engineering, and selected health fields.

³Fellowships are training programs where a government agency or other source specifies an individual to receive an award, which may be paid directly to the recipient. Other direct funding mechanisms may include internships, which provide students with opportunities to gain supervised practical experience; scholarships, which may help pay for education and do not need to be repaid; and traineeships, which are given to cover expenses during a workforce development program.

⁴The Oak Ridge Institute for Science and Education manages a research participation program where federal agencies sponsor research participants to develop the STEM workforce. Oak Ridge Affiliated Universities manages and directs the programs of the Oak Ridge Institute for Science and Education. For the purposes of this report, STEM fields include biology and biomedical sciences, engineering, physical sciences, computer and information sciences, social sciences, and mathematics and statistics.

⁵Indirect funding is not the same as indirect costs which are not directly attributable to a specific project but are necessary for the general operation of an organization receiving an award.

⁶National Science Board, *Science and Engineering Indicators 2024: Academic Research and Development*, NSB-2023-26 (October 5, 2023).

⁷To identify programs, we asked agencies to identify relevant programs, reviewed agency websites, and the National Science and Technology Council's (NSTC) Committee on STEM progress reports. We identified programs based on their support for graduate researchers receiving their doctoral degrees or postdocs and ability to provide one or more years of compensation. The Office of Science and Technology Policy does not manage programs that provide funding to graduate researchers or postdocs.

⁸The NSF's National Center for Science and Engineering Statistics (NCSES) *Survey of Graduate Students and Postdoctorates in Science and Engineering (GSS)* is a census of all U.S. universities granting research-based advanced degrees in science, engineering, and health fields that provides information on individuals' funding mechanisms and largest source of support. Individuals likely do not receive multiple federal awards at one time due to policies that mitigate duplicative federal funding, according to officials. Reported figures include graduate researchers and postdocs in the STEM fields. These figures do not include master's students or individuals in health-related fields, which NCSES categorizes separately from science and engineering.

⁹We analyzed GSS data for academic years 2017 through 2023 which are the most comparable and recent data available for this analysis, as of 2023. We use the term academic year to describe reference periods used by NCSES and other sources to describe academic-related data. Based on the source, data may be collected at different points or periods during the academic year.

¹⁰2 C.F.R. § 200.400. The Office of Management and Budget (OMB) *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* found at 2 C.F.R. Part 200 (commonly called "Uniform Guidance") provides guidance to federal agencies that award federal financial assistance to help ensure consistent and uniform government-wide policies and procedures for the management of federal financial assistance. Each of those agencies implements the Uniform Guidance by issuing agency-specific regulations found in 2 C.F.R. Subtitle B. See 2 C.F.R. §§ 1.105, 1.200.

¹¹2 C.F.R. § 200.403. The cost principles in the Uniform Guidance apply to grants and cooperative agreements. 2 C.F.R. § 200.101(b)(4).

¹²2 C.F.R. §§ 200.404, 200.430(a)–(b), (i). Outside of certain exceptions including specific authorization to do so in a law, regulation, or executive order or as granted by OMB, agencies are not permitted to impose additional requirements on recipients of federal financial assistance beyond the Uniform Guidance requirements. 2 C.F.R. §§ 200.100(a)(1), 200.102, 200.211. See also 2 C.F.R. § 200.208.

¹³Each year, NIH establishes National Research Service Award stipend levels based on levels from the prior fiscal year and federally appropriated funds for the upcoming fiscal year, according to officials.

¹⁴We estimated academic year 2023 earnings for directly compensated postdocs using NCSES Survey of Doctorate Recipients (SDR) data and reported the median (50th percentile) estimate. The

first quartile (25th percentile) and third quartile (75th percentile) for annual earnings are \$55,000 and \$68,000, respectively.

¹⁵We estimated academic year 2025 earnings for indirectly compensated graduate researchers using minimum annual salary data obtained from universities and reported the median (50th) percentile estimate, rounded to the nearest hundred. The unrounded median for annual earnings was \$35,947. The first quartile (25th percentile) and third quartile (75th percentile) for annual earnings were \$29,001 and \$42,822, respectively.

¹⁶We estimated academic year 2025 earnings for indirectly compensated postdocs using minimum annual salary data obtained from universities and reported the median (50th) percentile estimate, rounded to the nearest hundred. The unrounded median for annual earnings was \$62,232. The first quartile (25th percentile) and third quartile (75th percentile) for annual earnings were \$61,008 and \$68,209, respectively.

¹⁷“Education pays, 2024” U.S. Bureau of Labor Statistics, May 2025. The U.S. Bureau of Labor Statistics reported the weekly median income of full-time wage and salary workers by educational attainment in 2024. We transformed weekly values into an annual earnings for bachelor’s and doctoral degree holders—which are similarly educated groups compared to graduate researchers and postdocs—and rounded them to the nearest hundred. The unrounded figure for bachelor’s and doctoral degree holders are \$80,236 and \$118,456, respectively. The U.S. Bureau of Labor Statistics generated weekly earnings based on data from its 2024 Current Population Survey, which contains employment information by occupation and industry, including university and non-university occupations. Data represent earnings before taxes and other deductions and include any overtime pay, commissions, or tips usually received.

¹⁸16 U.S.C. § 1862p.

¹⁹National Science Foundation Authorization Act of 2010, within the America COMPETES Reauthorization Act of 2010, 42 U.S.C. § 1862p. NCSES is a principal statistical agency located within NSF. NCSES serves as a clearinghouse for the collection, interpretation, analysis, and dissemination of objective science and engineering data.

²⁰National Science Foundation, National Center for Science and Engineering Statistics, *National Center for Science and Engineering Statistics Strategic Plan 2024-2028*, NCSES 24-207 (Arlington, VA, 2024).

²¹“Information Quality at NSF,” National Science Foundation, accessed November 21, 2025.

²²GAO, *Evidence-Based Policymaking: Practices to Help Manage and Assess the Results of Federal Efforts*, [GAO-23-105460](#) (Washington, D.C.: July 12, 2023).

²³Research and Development, Competition, and Innovation Act, within the CHIPS and Science Act of 2022, Pub. L. 117-167, § 10,313(c), 136 Stat. 1366, 1524, codified at 42 U.S.C. § 18,993(c).

²⁴To further our understanding of the factors affecting graduate researchers’ and postdocs’ decisions to pursue or remain in federally funded research programs, we distributed a questionnaire to selected STEM graduate researchers and postdocs. We identified relevant factors that may affect STEM graduate researchers, and postdocs by analyzing relevant literature. Based on our analysis, we identified 19 factors, which we categorized as factors related to compensation and factors not related to compensation. The questionnaire included both closed- and open-ended questions. Of the 72 researchers who completed the questionnaire—32 graduate researchers and 40 postdocs—all self-reported eligibility by confirming they currently hold a federally funded research position (i.e., a research assistantship, fellowship, or other grant funded position) or held one in the last five years, either through direct funding from a federal agency or indirect funding through a principal investigator, department, or institution. Among our questions we asked respondents to rank the effect that selected factors had on their decision to pursue a federally funded research position or to remain in one. Questionnaire respondents were invited to participate in small group discussions to provide additional illustrative context for the survey findings. Eight respondents participated in these discussions. As all participants were also questionnaire respondents, no separate designation is used in reporting. Illustrative examples in this report are drawn from both statements made during the small group discussions and open-ended responses to two questionnaire items. For more information on how the questionnaire was administered and the sampling process, please see How GAO Did This Study.

²⁵Herbert, W. A., Apkarian, J., and van der Naald, J., *2024 Directory of Bargaining Agents and Contracts in Institutions of Higher Education*, National Center for the Study of Collective Bargaining in Higher Education and the Professions (New York, NY: 2024).

²⁶Heidt, Amanda. *Paying for Pricier Postdocs: Strikes across the United States Have Led to Rises for Academic Workers, but It's Unclear Who Will Foot the Bill and How They Might Do So*. *Nature*, vol. 621, p.431 (September 14, 2023).

²⁷National Academies of Sciences, Engineering, and Medicine. *Reimagining STEM Graduate Education and Postdoctoral Career Development: Proceedings of a Summit—in Brief.*, (Washington, D.C.: October 2025).

²⁸Department of Health and Human Services, National Institutes of Health, *NIH Advisory Committee to the Director Working Group on Re-envisioning NIH-Supported Postdoctoral Training*. (2023).

²⁹This brought the predoctoral stipend to \$28,224 annually and the starting postdoc stipend to \$61,008. National Institutes of Health. *NIH to Increase Pay Levels for Pre- and Postdoctoral Scholars at Grantee Institutions*. (Bethesda, Maryland: April 2024).

³⁰42 U.S.C. §§ 19,151(a), 19,155(a)(1). The reports are the National Science and Technology Council, *Federal Policies and Practices to Support STEM Researchers with Caregiving Responsibilities* (United States of America: May 2024), and the National Science and Technology Council, *Best Practices for Reducing Organizational, Cultural, and Institutional Barriers in STEM Research* (United States of America: May 2024).

³¹We identified stakeholders, such as relevant researchers and groups, through independent research and a snowball sampling methodology, taking care to ensure a diversity of perspectives.

³²Office of Science and Technology Policy, *2024 Report on the Committee on Science, Technology, Engineering, and Mathematics (CoSTEM) and CoSTEM-Related Agency Actions* (January 2025).

³³The Likert scale questions ask about the effects of key factors that may influence STEM graduate researchers and postdocs decisions to pursue or remain in federally funded research positions. Participants were asked, “*what kind of effect, if any, did each of the following factors have on your decision to join a federally funded research position?*” In a separate question, participants were asked “*what kind of effect, if any, did each of the following factors have on your decision to continue in or leave a federally funded research position?*” Participants rated each factor on a five-point scale: *large negative effect, moderate negative effect, little or no effect, moderate positive effect, and large positive effect*. For purposes of reporting, we collapsed Likert scale responses into three categories: positive effect, negative effect, and little or no effect to simplify interpretation of the detailed scale.

³⁴We limited our analysis to individuals in STEM fields, which we defined based on our analysis of broad STEM definitions and NCSES’ taxonomy of academic fields. These categories include fields we classified as STEM based on a review of NCSES’s Taxonomy of Discipline—to include biology and biomedical sciences, computer and information sciences, physical sciences, social sciences, engineering, and mathematics and statistics.

³⁵We selected these six agencies because they provided the most federal funding to science and engineering graduate researchers as of academic year 2021.

³⁶In our questionnaire, we asked respondents to rank the effect that selected factors had on their decision to pursue a federally funded research position or to remain in one. Factors were ranked by whether they had a positive or negative effect on a respondent’s decisions. For more information on how the questionnaire was administered and the sampling process, please see *How GAO Did This Study*.

³⁷For reporting purposes, we defined “fewer than half” as less than 36 ratings for a factor and “more than half” as greater than 36, and “exactly half” is equal to 36.

³⁸Melkers, Julia, Richard Woolley, and Quintin Kreth. *Research Funding and Scientific Careers*. In: Lepori B., Jongbloed B., Hicks, D. (eds.) *Handbook of Public Research Funding*. Edward Elgar, forthcoming in 2023.

³⁹See 29 U.S.C. §§ 2611(2)(A), 2612. Graduate researchers may receive compensation for part time appointments. Graduate researchers may receive compensation for 20 hours per week through their paid appointments.

⁴⁰Dependent coverage refers to insurance coverage for family members of the policyholder, such as spouses, children, or partners.

⁴¹Collier, Karen M., and Margaret R. Blanchard. "Historically underrepresented graduate students' experiences at a US majority serving institution: a narrative analysis." *International Journal of Doctoral Studies* 19 (2024): 1.

⁴²Responses reflect respondents' perspectives at the time the questionnaire and small group discussions were administered, which occurred between March and May 2025.

⁴³Collier, Karen Marie. *Exploring and Measuring Influential Factors for Graduate Student Success*. North Carolina State University, 2023.

⁴⁴Collier, Karen M., and Margaret R. Blanchard. "Historically underrepresented graduate students' experiences at a US majority serving institution: a narrative analysis." *International Journal of Doctoral Studies* 19 (2024): 1.