

across a broad range of institution types, including historically Black colleges and universities, Tribal Colleges or Universities, minority serving institutions and community colleges;

(C) identify and develop best practices to address barriers for faculty, including institutional culture, resources, and incentive structures;

(D) identify and address factors that may facilitate or discourage participation by students from all backgrounds;

(E) provide faculty with curriculum, professional development, training, networking opportunities, and other support to enable the development, adaptation, or expansion of a course-based research experience; and

(F) collect data and carry out research to evaluate the impacts of course-based undergraduate research experiences on the STEM workforce.

(3) Partnerships

In making awards under this paragraph, the Director shall consider the extent to which the proposed Center will establish partnerships among multiple types of academic institutions, including community colleges, emerging research institutions, EPSCoR institutions, historically Black colleges and universities, Tribal Colleges or Universities, and minority-serving institutions, the private sector, and other relevant stakeholders in supporting programs and activities to facilitate faculty training and the widespread and sustained implementation of promising, evidence-based practices, models, programs, and curriculum.

(4) Report

Not later than 180 days after the date on which the pilot program is completed, the Director shall submit to Congress a report that includes—

(A) an assessment, that includes feedback from the research community, of the effectiveness of the pilot program in increasing the number, diversity, and workforce readiness of STEM graduates; and

(B) if determined to be effective, a plan for permanent implementation of the pilot program.

(Pub. L. 117–167, div. B, title III, §10312, Aug. 9, 2022, 136 Stat. 1516.)

Editorial Notes

CODIFICATION

Section is comprised of section 10312 of div. B of Pub. L. 117–167. Subsec. (b) of section 10312 of div. B of Pub. L. 117–167 amended section 1862i of this title. Subsec. (f) of section 10312 of div. B of Pub. L. 117–167 amended sections 1862h, 1862i, and 1862j of this title.

§ 18993. Graduate STEM education

(a) Mentoring and professional development

(1) Mentoring plans

(A) Omitted

(B) Evaluation

Not later than 120 days after August 9, 2022, the Director shall enter into an agree-

ment with a qualified independent organization to evaluate the effectiveness of the postdoctoral mentoring plan requirement for improving mentoring for Foundation-supported postdoctoral researchers.

(2) Career exploration

(A) In general

The Director shall make awards, on a competitive basis, to institutions of higher education and nonprofit organizations (or consortia of such institutions or organizations) to develop innovative approaches for facilitating career exploration of academic and nonacademic career options and for providing opportunity-broadening experiences, including work-integrated opportunities, for graduate students and postdoctoral scholars that can then be considered, adopted, or adapted by other institutions and to carry out research on the impact and outcomes of such activities.

(B) Review of proposals

In selecting award recipients under this subparagraph, the Director shall consider, at a minimum—

(i) the extent to which the administrators of the institution are committed to making the proposed activity a priority; and

(ii) the likelihood that the institution or organization will sustain or expand the proposed activity effort beyond the period of the award.

(3) Development plans

The Director shall require that annual project reports for awards that support graduate students and postdoctoral scholars include certification by the principal investigator that each graduate student and postdoctoral scholar receiving substantial support from such award, as determined by¹ has developed and annually updated an individual development plan to map educational goals, career exploration, and professional development.

(4) Professional development supplement

The Director shall carry out a five-year pilot initiative to award up to 2,500 administrative supplements of up to \$2,000 to existing research awards annually, on a competitive basis, to support professional development experiences for graduate students and postdoctoral researchers who receive a substantial portion of their support under such award, as determined by the Director. Not more than 10 percent of supplements awarded under this subparagraph² may be used to support professional development experiences for postdoctoral researchers.

(5) Graduate education research

The Director shall make awards, on a competitive basis, to institutions of higher education or nonprofit organizations (or consortia of such institutions or organizations) to sup-

¹ So in original.

² So in original. Probably should be “paragraph”.

port research on the graduate education system and outcomes of various interventions and policies, including—

(A) the effects of traineeships, fellowships, internships, and teaching and research assistantships on outcomes for graduate students;

(B) the effects of graduate education and mentoring policies and procedures on degree completion, including differences by—

- (i) sex, race and ethnicity, and citizenship; and
- (ii) student debt load;

(C) the development and assessment of new or adapted interventions, including approaches that improve mentoring relationships, develop conflict management skills, and promote healthy research teams; and

(D) research, data collection, and assessment of the state of graduate student mental health and wellbeing, factors contributing to and consequences of poor graduate student mental health, and the development, adaptation, and assessment of evidence-based strategies and policies to support emotional wellbeing and mental health.

(b) Graduate Research Fellowship Program update

(1) Sense of Congress

It is the sense of Congress that the Foundation should increase the number of new graduate research fellows supported annually over the next 5 years to no fewer than 3,000 fellows.

(2) Omitted

(3) Cybersecurity scholarships and graduate fellowships

The Director shall ensure that students pursuing master's degrees and doctoral degrees in fields relating to cybersecurity are eligible to apply for scholarships and graduate fellowships under the Graduate Research Fellowship Program under section 1869 of this title.

(c) Study on graduate student funding

(1) In general

Not later than 120 days after August 9, 2022, the Director shall enter into an agreement with a qualified independent organization to evaluate—

(A) the role of the Foundation in supporting graduate student education and training through fellowships, traineeships, and other funding models; and

(B) the impact of different funding mechanisms on graduate student experiences and outcomes, including whether such mechanisms have differential impacts on subsets of the student population.

(2) Report

Not later than 1 year after August 9, 2022, the Director shall publish the results of the evaluation carried out under paragraph (1), including a recommendation for the appropriate balance between fellowships, traineeships, and other funding models.

(d) [LOG 165 H10304(g)/S2208]¹ AI scholarship-for-service

(1) Definition of executive agency

In this subsection, the term “executive agency” has the meaning given the term “Executive agency” in section 105 of title 5.

(2) AI scholarship-for-service initiative report

Not later than 1 year after August 9, 2022, the Director, in coordination with the Office of Personnel Management, shall submit to the Committee on Commerce, Science, and Transportation of the Senate, the Committee on Science, Space, and Technology of the House of Representatives, the Committee on Homeland Security and Governmental Affairs of the Senate, and the Committee on Oversight and Reform of the House of Representatives a report on the need and feasibility, and if appropriate, plans to implement a program to recruit and train the next generation of artificial intelligence professionals to meet the needs of Federal, State, local, and Tribal governments. The report shall include—

(A) recent statistical data on the size, composition, and educational requirements of the Federal AI workforce, including an assessment of current and future demand for additional AI professionals across the Federal Government;

(B) an assessment of the capacity of institutions of higher education to produce graduates with degrees, certifications, and relevant skills related to artificial intelligence that meet the current and future needs of the Federal workforce; and

(C) an evaluation of the need for and feasibility of establishing a scholarship-for-service program to recruit and train the next generation of artificial intelligence professionals to meet the needs of Federal, State, local, and Tribal governments, including opportunities for leveraging existing processes and resources for administering the Federal Cyber Scholarship-for-Service Program established under section 7442 of title 15 in standing up such a program.

(3) Program establishment

Upon submitting the report required in paragraph (2), the Director, in coordination with the Director of the Office of Personnel Management, the Director of the National Institute of Standards and Technology, and the heads of other agencies with appropriate scientific knowledge, is authorized to establish a Federal artificial intelligence scholarship-for-service program (referred to in this section as the Federal AI Scholarship-for-Service Program) to recruit and train artificial intelligence professionals to lead and support the application of artificial intelligence to the missions of Federal, State, local, and Tribal governments.

(4) Qualified institution of higher education

The Director, in coordination with the heads of other agencies with appropriate scientific knowledge, shall establish criteria to designate qualified institutions of higher education that shall be eligible to participate in

the Federal AI Scholarship-for-Service program. Such criteria shall include—

(A) measures of the institution's demonstrated excellence in the education of students in the field of artificial intelligence; and

(B) measures of the institution's ability to attract and retain a diverse and nontraditional student population in the fields of science, technology, engineering, and mathematics, which may include the ability to attract women, minorities, and individuals with disabilities.

(5) Program description and components

The Federal AI Scholarship-for-Service Program shall—

(A) provide scholarships through qualified institutions of higher education to students who are enrolled in programs of study at institutions of higher education leading to degrees or concentrations in or related to the artificial intelligence field;

(B) provide the scholarship recipients with summer internship opportunities or other meaningful temporary appointments in the Federal workforce focusing on AI projects or research;

(C) prioritize the employment placement of scholarship recipients in executive agencies;

(D) identify opportunities to promote multi-disciplinary programs of study that integrate basic or advanced AI training with other fields of study, including those that address the social, economic, legal, and ethical implications of human interaction with AI systems;

(E) support capacity-building education research programs that will enable postsecondary educational institutions to expand their ability to train the next-generation AI workforce, including AI researchers and practitioners;

(F) create courses or training programs in technology ethics for students receiving scholarships; and

(G) award fellowships to masters and doctoral students who are pursuing degrees or research in artificial intelligence and related fields, including in the field of technology ethics.

(6) Scholarship amounts

Each scholarship under paragraph (5) shall be in an amount that covers the student's tuition and fees at the institution for not more than 3 years and provides the student with an additional stipend.

(7) Post-award employment obligations

Each scholarship recipient, as a condition of receiving a scholarship under the program, shall enter into an agreement under which the recipient agrees to work for a period equal to the length of the scholarship, following receipt of the student's degree, in the AI mission of—

(A) an executive agency;

(B) Congress, including any agency, entity, office, or commission established in the legislative branch;

(C) an interstate agency;

(D) a State, local, or Tribal government, which may include instruction in AI-related skill sets in a public school system; or

(E) a State, local, or Tribal government-affiliated nonprofit entity that is considered to be critical infrastructure (as defined in section 5195c(e) of this title).

(8) Hiring authority

(A) Appointment in excepted service

Notwithstanding any provision of chapter 33 of title 5, governing appointments in the competitive service, an executive agency may appoint an individual who has completed the eligible degree program for which a scholarship was awarded to a position in the excepted service in the executive agency.

(B) Noncompetitive conversion

Except as provided in subparagraph (D), upon fulfillment of the service term, an employee appointed under subparagraph (A) may be converted noncompetitively to term, career-conditional, or career appointment.

(C) Timing of conversion

An executive agency may noncompetitively convert a term employee appointed under subparagraph (B) to a career-conditional or career appointment before the term appointment expires.

(D) Authority to decline conversion

An executive agency may decline to make the noncompetitive conversion or appointment under subparagraph (B) for cause.

(9) Eligibility

To be eligible to receive a scholarship under this section, an individual shall—

(A) be a citizen or lawful permanent resident of the United States;

(B) demonstrate a commitment to a career in advancing the field of AI;

(C) be—

(i) a full-time student in an eligible degree program at a qualified institution of higher education, as determined by the Director;

(ii) a student pursuing a degree on a less than full-time basis, but not less than half-time basis; or

(iii) an AI faculty member on sabbatical to advance knowledge in the field; and

(D) accept the terms of a scholarship under this section.

(10) Conditions of support

(A) In general

As a condition of receiving a scholarship under this section, a recipient shall agree to provide the qualified institution of higher education with annual verifiable documentation of post-award employment and up-to-date contact information.

(B) Terms

A scholarship recipient under this section shall be liable to the United States as provided in paragraph (12) if the individual—

(i) fails to maintain an acceptable level of academic standing at the applicable in-

stitution of higher education, as determined by the Director;

(ii) is dismissed from the applicable institution of higher education for disciplinary reasons;

(iii) withdraws from the eligible degree program before completing the program;

(iv) declares that the individual does not intend to fulfill the post-award employment obligation under this section; or

(v) fails to fulfill the post-award employment obligation of the individual under this section.

(11) Monitoring compliance

As a condition of participating in the program, a qualified institution of higher education shall—

(A) enter into an agreement with the Director to monitor the compliance of scholarship recipients with respect to their post-award employment obligations; and

(B) provide to the Director, on an annual basis, the post-award employment documentation required under paragraph (10) for scholarship recipients through the completion of their post-award employment obligations.

(12) Amount of repayment

(A) Less than 1 year of service

If a circumstance described in paragraph (10) occurs before the completion of 1 year of a post-award employment obligation under this section, the total amount of scholarship awards received by the individual under this section shall—

(i) be repaid; or

(ii) be treated as a loan to be repaid in accordance with paragraph (13).

(B) 1 or more years of service

If a circumstance described in clause (iv) or (v) of paragraph (10)(B) occurs after the completion of 1 or more years of a post-award employment obligation under this section, the total amount of scholarship awards received by the individual under this section, reduced by the ratio of the number of years of service completed divided by the number of years of service required, shall—

(i) be repaid; or

(ii) be treated as a loan to be repaid in accordance with paragraph (13).

(13) Repayments

A loan described in paragraph (12) shall—

(A) be treated as a Federal Direct Unsubsidized Stafford Loan under part D of title IV of the Higher Education Act of 1965 (20 U.S.C. 1087a et seq.); and

(B) be subject to repayment, together with interest thereon accruing from the date of the scholarship award, in accordance with terms and conditions specified by the Director (in consultation with the Secretary of Education).

(14) Collection of repayment

(A) In general

In the event that a scholarship recipient is required to repay the scholarship award

under this section, the qualified institution of higher education providing the scholarship shall—

(i) determine the repayment amounts and notify the recipient and the Director of the amounts owed; and

(ii) collect the repayment amounts within a period of time as determined by the Director, or the repayment amounts shall be treated as a loan in accordance with paragraph (13).

(B) Returned to Treasury

Except as provided in subparagraph (C), any repayment under this subsection shall be returned to the Treasury of the United States.

(C) Retain percentage

A qualified institution of higher education may retain a percentage of any repayment the institution collects under this subsection to defray administrative costs associated with the collection. The Director shall establish a fixed percentage that will apply to all eligible entities, and may update this percentage as needed, in the determination of the Director.

(15) Exceptions

The Director may provide for the partial or total waiver or suspension of any service or payment obligation by an individual under this section whenever compliance by the individual with the obligation is impossible or would involve extreme hardship to the individual, or if enforcement of such obligation with respect to the individual would be unconscionable.

(16) Public information

(A) Evaluation

The Director, in coordination with the Director of the Office of Personnel Management, shall annually evaluate and make public, in a manner that protects the personally identifiable information of scholarship recipients, information on the success of recruiting individuals for scholarships under this section and on hiring and retaining those individuals in the public sector AI workforce, including information on—

(i) placement rates;

(ii) where students are placed, including job titles and descriptions;

(iii) salary ranges for students not released from obligations under this section;

(iv) how long after graduation students are placed;

(v) how long students stay in the positions they enter upon graduation;

(vi) how many students are released from obligations; and

(vii) what, if any, remedial training is required.

(B) Reports

The Director, in coordination with the Office of Personnel Management, shall submit, not less frequently than once every 3 years, to the Committee on Homeland Security and Governmental Affairs of the Senate, the

Committee on Commerce, Science, and Transportation of the Senate, the Committee on Science, Space, and Technology of the House of Representatives, and the Committee on Oversight and Reform of the House of Representatives a report, including the results of the evaluation under subparagraph (A) and any recent statistics regarding the size, composition, and educational requirements of the Federal AI workforce.

(C) Resources

The Director, in coordination with the Director of the Office of Personnel Management, shall provide consolidated and user-friendly online resources for prospective scholarship recipients, including, to the extent practicable—

- (i) searchable, up-to-date, and accurate information about participating institutions of higher education and job opportunities related to the AI field; and
- (ii) a modernized description of AI careers.

(17) Refresh

Not less than once every 2 years, the Director, in coordination with the Director of the Office of Personnel Management, shall review and update the Federal AI Scholarship-for-Service Program to reflect advances in technology.

(Pub. L. 117–167, div. B, title III, §10313, Aug. 9, 2022, 136 Stat. 1522.)

Editorial Notes

REFERENCES IN TEXT

The Higher Education Act of 1965, referred to in subsec. (d)(13)(A), is Pub. L. 89–329, Nov. 8, 1965, 79 Stat. 1219. Part D of title IV of the Act is classified generally to part D (§1087a et seq.) of subchapter IV of chapter 28 of Title 20, Education. For complete classification of this Act to the Code, see section 1 of Pub. L. 89–329, set out as a Short Title note under section 1001 of Title 20 and Tables.

CODIFICATION

Section is comprised of section 10313 of div. B of Pub. L. 117–167. Subsecs. (a)(1)(A) and (b)(2) of section 10313 of div. B of Pub. L. 117–167 amended sections 1862o and 1869 of this title, respectively.

Statutory Notes and Related Subsidiaries

CHANGE OF NAME

Committee on Oversight and Reform of House of Representatives changed to Committee on Oversight and Accountability of House of Representatives by House Resolution No. 5, One Hundred Eighteenth Congress, Jan. 9, 2023.

§ 18994. STEM workforce data

(a) Skilled technical workforce portfolio review

(1) In general

Not later than 1 year after August 9, 2022, the Director shall conduct a full portfolio analysis of the Foundation’s skilled technical workforce investments across all Directorates in the areas of education, research, infrastructure, data collection, and analysis.

(2) Report

Not later than 180 days after the date of the review under paragraph (1) is complete, the Di-

rector shall submit to Congress and make widely available to the public a summary report of the portfolio review.

(b) Survey data

(1) Rotating topic modules

To meet evolving needs for data on the state of the science and engineering workforce, the Director shall assess, through coordination with other Federal statistical agencies and drawing on input from relevant stakeholders, the feasibility and benefits of incorporating questions or topic modules to existing National Center for Science and Engineering Statistics surveys that would vary from cycle to cycle.

(2) New data

Not later than 1 year after August 9, 2022, the Director shall submit to Congress and the Board the results of an assessment, carried out in coordination with other Federal agencies and with input from relevant stakeholders, of the feasibility and benefits of incorporating new questions or topic modules to existing National Center for Science and Engineering Statistics surveys on—

- (A) the skilled technical workforce;
- (B) working conditions and work-life balance;
- (C) harassment and discrimination;
- (D) immigration and emigration; and
- (E) any other topics at the discretion of the Director.

(3) Longitudinal design

The Director shall continue and accelerate efforts to enhance the usefulness of National Center for Science and Engineering Statistics survey data for longitudinal research and analysis.

(4) Government Accountability Office review

Not later than 1 year after August 9, 2022, the Comptroller General of the United States shall submit a report to Congress that—

- (A) evaluates Foundation processes for ensuring the data and analysis produced by the National Center for Science and Engineering Statistics meets current and future needs; and
- (B) includes such recommendations as the Comptroller General determines are appropriate to improve such processes.

(Pub. L. 117–167, div. B, title III, §10314, Aug. 9, 2022, 136 Stat. 1529.)

§ 18995. Cyber workforce development research and development

(a) In general

The Director shall make awards on a merit-reviewed, competitive basis to institutions of higher education or nonprofit organizations (or consortia of such institutions or organizations) to carry out research on the cyber workforce.

(b) Research

In carrying out research pursuant to subsection (a), the Director shall support research and development activities to—

- (1) understand the current state of the cyber workforce, including factors that influence