

115TH CONGRESS
1ST SESSION

S. 1270

To direct the Director of the Office of Science and Technology Policy to carry out programs and activities to ensure that Federal science agencies and institutions of higher education receiving Federal research and development funding are fully engaging their entire talent pool, and for other purposes.

IN THE SENATE OF THE UNITED STATES

MAY 25, 2017

Mr. SCHUMER (for Ms. HIRONO (for herself, Mr. BLUMENTHAL, and Mr. MERKLEY)) introduced the following bill; which was read twice and referred to the Committee on Health, Education, Labor, and Pensions

A BILL

To direct the Director of the Office of Science and Technology Policy to carry out programs and activities to ensure that Federal science agencies and institutions of higher education receiving Federal research and development funding are fully engaging their entire talent pool, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE; FINDINGS.**

4 (a) SHORT TITLE.—This Act may be cited as the
5 “STEM Opportunities Act of 2017”.

1 (b) FINDINGS.—Congress finds the following:

2 (1) Many reports over the past decade have
3 found that it is critical to our Nation’s economic
4 leadership and global competitiveness that we edu-
5 cate and train more scientists and engineers.

6 (2) Research shows that women and minorities
7 who are interested in STEM careers are dispropor-
8 tionately lost at nearly every educational transition.

9 (3) The National Center for Science and Engi-
10 neering Statistics at the National Science Founda-
11 tion collects, compiles, and publishes data on the de-
12 mographics of STEM degrees and STEM jobs in the
13 United States.

14 (4) Women now earn nearly 37 percent of all
15 STEM bachelor’s degrees, but major variations per-
16 sist among fields. In 2015, women earned only 19
17 percent of all bachelor’s degrees awarded in engi-
18 neering and 18 percent in computer sciences. Based
19 on Bureau of Labor Statistics data, jobs in com-
20 puting occupations are expected to account for near-
21 ly $\frac{2}{3}$ of the projected annual growth of newly cre-
22 ated STEM job openings from 2014 to 2024.

23 (5) In 2015, underrepresented minority groups
24 comprised 39 percent of the college-age population
25 of the United States, but only 17 percent of stu-

1 dents earning bachelor’s degrees in STEM fields.
2 The Higher Education Research Institute at the
3 University of California, Los Angeles, found that,
4 while freshmen from underrepresented minority
5 groups express an interest in pursuing a STEM un-
6 dergraduate degree at the same rate as all other
7 freshmen, only 22.1 percent of Latino students, 18.4
8 percent of African-American students, and 18.8 per-
9 cent of Native American students studying in STEM
10 fields complete their degree within 5 years, com-
11 pared to approximately 33 percent and 42 percent 5-
12 year completion rate for White and Asian students,
13 respectively.

14 (6) In some STEM fields, including the com-
15 puter sciences, women persist at about the same rate
16 through doctorate degrees. In other fields, including
17 the physical sciences and mathematics, their num-
18 bers decrease by as much as 1 in 3. Overall, women
19 earned 39 percent of STEM doctorate degrees in
20 2014. The number of minority students earning
21 STEM doctorate degrees drops by nearly 40 percent.
22 Students from underrepresented minority groups ac-
23 counted for only 10.5 percent of STEM doctorate
24 degrees awarded in 2014.

1 (7) The representation of women in STEM
2 drops significantly again at the faculty level. Overall,
3 women hold only 23 percent of all tenured and ten-
4 ure-track positions and 24 percent of full professor
5 positions in STEM fields in our Nation's universities
6 and 4-year colleges. Black and Hispanic faculty to-
7 gether hold about 6.4 percent of all tenured and ten-
8 ure-track positions and 7 percent of full professor
9 positions. Many of the numbers in the American In-
10 dian or Alaskan Native and Native Hawaiian or
11 Other Pacific Islander categories for different fac-
12 ulty ranks were too small for the National Science
13 Foundation to report publicly without potentially
14 compromising confidential information about the in-
15 dividuals being surveyed.

16 (8) The representation of women is especially
17 low at our Nation's top research universities. Even
18 in the biological sciences, in which women now earn
19 more than 50 percent of the doctorates and passed
20 the 25 percent level 37 years ago, women make up
21 only 25 percent of the full professors at the 100 or
22 so most research-intensive universities. In the phys-
23 ical sciences and mathematics, they make up only 11
24 percent of these senior positions, in computer
25 sciences only 10 percent, and across engineering

1 fields only 7 percent. The data suggest that approxi-
2 mately 6 percent of all tenure-track STEM faculty
3 members at the most research intensive universities
4 are from underrepresented minority groups, but in
5 some fields the numbers are too small to report pub-
6 licly.

7 (9) By 2050 underrepresented minorities will
8 comprise 52 percent of the college-age population of
9 the United States. If the percentage of female stu-
10 dents and students from underrepresented minority
11 groups earning bachelor's degrees in STEM fields
12 does not significantly increase, the United States
13 will face an acute shortfall in the overall number of
14 students who earn degrees in STEM fields just as
15 United States companies are increasingly seeking
16 students with those skills. With this impending
17 shortfall, the United States will almost certainly lose
18 its competitive edge in the 21st century global econ-
19 omy.

20 (10) According to a recent Association for
21 Women in Science survey of more than 4,000 sci-
22 entists across the globe, 70 percent of whom were
23 men, STEM researchers face significant challenges
24 in work-life integration. Researchers in the United
25 States were among the most likely to experience a

1 conflict between work and their personal life at least
2 weekly. One-third of researchers surveyed said that
3 ensuring good work-life integration has negatively
4 impacted their careers, and, of researchers intending
5 to leave their current job within the next year, 9
6 percent indicated it was because they were unable to
7 balance work and life demands.

8 (11) Female students and students from under-
9 represented minority groups at institutions of higher
10 education who see few others “like themselves”
11 among faculty and student populations often do not
12 experience the social integration that is necessary for
13 success in all disciplines, including STEM.

14 (12) A substantial body of evidence establishes
15 that most people hold implicit biases. Decades of
16 cognitive psychology research reveal that most peo-
17 ple carry prejudices of which they are unaware but
18 that nonetheless play a large role in evaluations of
19 people and their work. Unintentional biases and out-
20 moded institutional structures are hindering the ac-
21 cess and advancement of women and minorities in
22 science and engineering.

23 (13) Workshops held to educate faculty about
24 unintentional biases have demonstrated success in
25 raising awareness of such biases.

1 (14) In 2012 the National Aeronautics and
2 Space Administration’s Office of Diversity and
3 Equal Opportunity completed a report specifically
4 designed to help NASA grant recipients identify why
5 the dearth of women in STEM fields continues and
6 to ensure that it is not due to discrimination. The
7 report provides guidance to institutions of higher
8 education on how to conduct meaningful self-evalua-
9 tions of campus culture and policies. This report and
10 its guidance are equally applicable to all institutions
11 of higher education receiving significant Federal re-
12 search funding.

13 (15) The Federal Government provides more
14 than 60 percent of research funding at institutions
15 of higher education and, through its grant-making
16 policies, has had significant influence on institution
17 of higher education policies, including policies re-
18 lated to institutional culture and structure.

19 **SEC. 2. PURPOSE.**

20 (a) IN GENERAL.—The Director, acting through the
21 Federal science agencies, shall carry out programs and ac-
22 tivities with the purpose of ensuring that Federal science
23 agencies and institutions of higher education receiving
24 Federal research and development funding are fully en-
25 gaging their entire talent pool.

1 (b) PURPOSES.—The purposes of this Act are as fol-
2 lows:

3 (1) To promote research on and increase under-
4 standing of the participation and trajectories of
5 women and underrepresented minorities in STEM
6 careers at institutions of higher education and Fed-
7 eral science agencies, including Federal laboratories.

8 (2) To raise awareness within Federal science
9 agencies, including Federal laboratories, and institu-
10 tions of higher education about cultural and institu-
11 tional barriers limiting the recruitment, retention,
12 promotion, and other indicators of participation and
13 achievement of women and underrepresented minori-
14 ties in academic and Government STEM research
15 careers at all levels.

16 (3) To identify, disseminate, and implement
17 best practices at Federal science agencies, including
18 Federal laboratories, and at institutions of higher
19 education to remove or reduce cultural and institu-
20 tional barriers limiting the recruitment, retention,
21 and success of women and underrepresented minori-
22 ties in academic and Government STEM research
23 careers.

24 (4) To provide grants to institutions of higher
25 education to recruit, retain, and advance STEM fac-

1 (C) grant supplements as appropriate to
2 research awards for research technicians or
3 equivalent to sustain research activities; and

4 (D) any other appropriate accommodations
5 at the discretion of the director of each agency.

6 (b) UNIFORMITY OF GUIDANCE.—In providing such
7 guidance, the Director shall encourage uniformity and
8 consistency in the policies across all agencies.

9 (c) ESTABLISHMENT OF POLICIES.—Consistent with
10 the guidance provided under this section, Federal science
11 agencies shall maintain or develop and implement policies
12 for caregivers and shall broadly disseminate such policies
13 to current and potential grantees.

14 (d) DATA ON USAGE.—Federal science agencies
15 shall—

16 (1) collect data on the usage of the policies
17 under subsection (c), by gender, at both institutions
18 of higher education and Federal laboratories; and

19 (2) report such data on an annual basis to the
20 Director in such form as required by the Director.

21 **SEC. 4. COLLECTION AND REPORTING OF DATA ON FED-**
22 **ERAL RESEARCH GRANTS.**

23 (a) COLLECTION OF DATA.—

24 (1) IN GENERAL.—Each Federal science agency
25 shall collect standardized record-level annual infor-

1 mation on demographics, primary field, award type,
2 review rating (as practicable), budget request, fund-
3 ing outcome, and awarded budget for all applications
4 for merit-reviewed research and development grants
5 to institutions of higher education and Federal lab-
6 oratories supported by that agency.

7 (2) UNIFORMITY AND STANDARDIZATION.—The
8 Director shall establish a policy to ensure uniformity
9 and standardization of the data collection required
10 under paragraph (1).

11 (3) RECORD-LEVEL DATA.—

12 (A) REQUIREMENT.—On an annual basis,
13 beginning with the deadline under subpara-
14 graph (C), each Federal science agency shall
15 submit to the Director of the National Science
16 Foundation record-level data collected under
17 paragraph (1) in the form required by such Di-
18 rector.

19 (B) PREVIOUS DATA.—As part of the first
20 submission under subparagraph (A), each Fed-
21 eral science agency, to the extent practicable,
22 shall also submit comparable record-level data
23 for the 5 years preceding the deadline under
24 subparagraph (C).

1 (C) DEADLINE.—The deadline under this
2 paragraph is a date that is not later than 2
3 years after the date of enactment of this Act.

4 (b) REPORTING OF DATA.—The Director of the Na-
5 tional Science Foundation shall publish statistical sum-
6 mary data collected under this section, disaggregated and
7 cross-tabulated by race, ethnicity, gender, age, and years
8 since completion of doctoral degree, including in conjunc-
9 tion with the National Science Foundation’s report re-
10 quired by section 37 of the Science and Engineering Equal
11 Opportunities Act (42 U.S.C. 1885d; Public Law 96-
12 516).

13 **SEC. 5. POLICIES FOR REVIEW OF FEDERAL RESEARCH**
14 **GRANTS.**

15 (a) IN GENERAL.—The Director, in collaboration
16 with the interagency working group on inclusion in
17 STEM, shall identify information and best practices useful
18 for educating program officers and members of standing
19 peer review committees at Federal science agencies
20 about—

21 (1) research on implicit bias based on gender,
22 race, or ethnicity; and

23 (2) methods to minimize the effect of such bias
24 in the review of extramural and intramural Federal
25 research grants.

1 (b) GUIDANCE TO ALL FEDERAL SCIENCE AGEN-
2 CIES.—The Director shall disseminate the information
3 and best practices identified in subsection (a) to all Fed-
4 eral science agencies and provide guidance as necessary
5 on policies to implement such practices within each agen-
6 cy.

7 (c) PILOT PROGRAM AT FEDERAL SCIENCE AGEN-
8 CIES.—In consultation with the National Science Founda-
9 tion and consistent with guidance provided in subsection
10 (b), each Federal science agency shall implement a 2-year
11 pilot orientation activity for program officers and mem-
12 bers of standing review committees to educate reviewers
13 and mitigate the effects of implicit bias in the review of
14 extramural and intramural Federal research grants.

15 (d) ESTABLISHMENT OF POLICIES.—Drawing upon
16 lessons learned from the pilot activity in subsection (c),
17 Federal science agencies shall maintain or develop and im-
18 plement policies and practices to minimize the effects of
19 implicit bias in the review of extramural and intramural
20 Federal research grants.

21 (e) ASSESSMENT OF POLICIES.—Federal science
22 agencies shall regularly assess and amend as necessary the
23 policies and practices in subsection (d) to ensure effective
24 measures are in place to minimize the impact of implicit
25 bias on the grant review process.

1 (f) REPORT TO CONGRESS.—Not later than 4 years
2 after the date of enactment of this Act, the Director shall
3 report to Congress on what steps all Federal science agen-
4 cies have taken to implement policies and practices to min-
5 imize the effects of bias in the review of extramural and
6 intramural Federal research grants.

7 **SEC. 6. COLLECTION OF DATA ON DEMOGRAPHICS OF FAC-**
8 **ULTY.**

9 (a) COLLECTION OF DATA.—

10 (1) IN GENERAL.—Not later than 3 years after
11 the date of enactment of this Act, and at least every
12 5 years thereafter, the Director of the National
13 Science Foundation shall carry out a survey to col-
14 lect institution-level data on the demographics of
15 STEM faculty, by broad fields of STEM, at dif-
16 ferent types of institutions of higher education.

17 (2) CONSIDERATIONS.—To the extent prac-
18 ticable, the Director of the National Science Foun-
19 dation shall consider, by gender, race, ethnicity, citi-
20 zenship status, age, and years since completion of
21 doctoral degree—

22 (A) the number and percentage of faculty;

23 (B) the number and percentage of faculty
24 at each rank;

1 (C) the number and percentage of faculty
2 who are in nontenure-track positions, including
3 teaching and research;

4 (D) the number and percentage of faculty
5 who are reviewed for promotion, including ten-
6 ure, and the percentage of that number who are
7 promoted, including being awarded tenure;

8 (E) faculty years in rank;

9 (F) the number and percentage of faculty
10 to leave tenure-track positions;

11 (G) the number and percentage of faculty
12 hired, by rank; and

13 (H) the number and percentage of faculty
14 in leadership positions.

15 (b) EXISTING SURVEYS.—The Director of the Na-
16 tional Science Foundation—

17 (1) may carry out the requirements under sub-
18 section (a) by collaborating with statistical centers
19 at other Federal agencies to modify or expand, as
20 necessary, existing Federal surveys of higher edu-
21 cation; or

22 (2) may award a grant or contract to an insti-
23 tution of higher education or other nonprofit organi-
24 zation to design and carry out the requirements
25 under subsection (a).

1 (c) REPORTING DATA.—The Director of the National
2 Science Foundation shall publish statistical summary data
3 collected under this section, including as part of the Na-
4 tional Science Foundation’s report required by section 37
5 of the Science and Engineering Equal Opportunities Act
6 (42 U.S.C. 1885d; Public Law 96–516).

7 (d) AUTHORIZATION OF APPROPRIATIONS.—There
8 are authorized to be appropriated to the Director of the
9 National Science Foundation \$3,000,000 in each of fiscal
10 years 2018 through 2020 to develop and carry out the
11 initial survey required in subsection (a).

12 **SEC. 7. CULTURAL AND INSTITUTIONAL BARRIERS TO EX-**
13 **PANDING THE ACADEMIC AND FEDERAL**
14 **STEM WORKFORCE.**

15 (a) BEST PRACTICES AT INSTITUTIONS OF HIGHER
16 EDUCATION.—

17 (1) DEVELOPMENT OF GUIDANCE.—Not later
18 than 6 months after the date of enactment of this
19 Act, the Director of the National Science Founda-
20 tion shall develop written guidance for institutions of
21 higher education on the best practices for—

22 (A) conducting periodic campus culture
23 surveys of STEM departments, with a par-
24 ticular focus on identifying any cultural or in-
25 stitutional barriers to or successful enablers for

1 the recruitment, retention, promotion, and
2 other indicators of participation and achieve-
3 ment, of women and underrepresented minori-
4 ties in STEM degree programs and academic
5 STEM careers; and

6 (B) providing educational opportunities, in-
7 cluding workshops as described in subsection
8 (c), for STEM faculty and administrators to
9 learn about current research on implicit bias in
10 recruitment, evaluation, and promotion of fac-
11 ulty in STEM and recruitment and evaluation
12 of undergraduate and graduate students in
13 STEM degree programs.

14 (2) EXISTING GUIDANCE.—In developing the
15 guidance in paragraph (1), the Director of the Na-
16 tional Science Foundation shall utilize guidance al-
17 ready developed by the National Aeronautics and
18 Space Administration, the Department of Energy,
19 and the Department of Education.

20 (3) DISSEMINATION OF GUIDANCE.—The Direc-
21 tor of the National Science Foundation shall broadly
22 disseminate the guidance developed in paragraph (1)
23 to institutions of higher education that receive Fed-
24 eral research funding.

1 (4) REPORTS TO THE NATIONAL SCIENCE
2 FOUNDATION.—The Director of the National Science
3 Foundation shall develop a policy that—

4 (A) applies to, at a minimum, the institu-
5 tions classified under the Indiana University
6 Center for Postsecondary Research Carnegie
7 Classification on January 1, 2015, as a doc-
8 torate-granting university with a very high level
9 of research activity; and

10 (B) requires each institution identified in
11 subparagraph (A), not later than 3 years after
12 the date of enactment of this Act, to report to
13 the Director of the National Science Founda-
14 tion on activities and policies developed and im-
15 plemented based on the guidance provided in
16 paragraph (1).

17 (b) BEST PRACTICES AT FEDERAL LABORA-
18 TORIES.—

19 (1) DEVELOPMENT OF GUIDANCE.—Not later
20 than 6 months after the date of enactment of this
21 Act, the Director shall develop written guidance for
22 Federal laboratories to develop and implement prac-
23 tices and policies to—

24 (A) conduct periodic laboratory-wide cul-
25 ture surveys of research personnel at all levels,

1 with a particular focus on identifying any cul-
2 tural or institutional barriers to the recruit-
3 ment, retention, and success of women and
4 underrepresented minorities in STEM careers
5 at Federal laboratories; and

6 (B) provide educational opportunities, in-
7 cluding workshops as described in subsection
8 (c), for STEM research personnel to learn
9 about current research in implicit bias in re-
10 cruitment, evaluation, and promotion of re-
11 search personnel at Federal laboratories.

12 (2) ESTABLISHMENT OF POLICIES.—Consistent
13 with the guidance provided in paragraph (1), Fed-
14 eral science agencies with Federal laboratories shall
15 maintain or develop and implement policies for their
16 respective Federal laboratories.

17 (c) WORKSHOPS TO ADDRESS CULTURAL BARRIERS
18 TO EXPANDING THE ACADEMIC AND FEDERAL STEM
19 WORKFORCE.—

20 (1) IN GENERAL.—Not later than 6 months
21 after the date of enactment of this Act, the Director,
22 in consultation with the interagency working group
23 on inclusion in STEM, shall recommend a uniform
24 policy for Federal science agencies to carry out a
25 program of workshops that educate STEM depart-

1 ment chairs at institutions of higher education, sen-
2 ior managers at Federal laboratories, and other fed-
3 erally funded researchers about methods that mini-
4 mize the effects of implicit bias in the career ad-
5 vancement, including hiring, tenure, promotion, and
6 selection for any honor based in part on the recipi-
7 ent's research record, of academic and Federal
8 STEM researchers.

9 (2) INTERAGENCY COORDINATION.—The Direc-
10 tor shall ensure that workshops supported under this
11 subsection are coordinated across Federal science
12 agencies and jointly supported as appropriate.

13 (3) MINIMIZING COSTS.—To the extent prac-
14 ticable, workshops shall be held in conjunction with
15 national or regional STEM disciplinary meetings to
16 minimize costs associated with participant travel.

17 (4) PRIORITY FIELDS FOR ACADEMIC PARTICI-
18 PANTS.—In considering the participation of STEM
19 department chairs and other academic researchers,
20 the Director shall prioritize workshops for the broad
21 fields of STEM in which the national rate of rep-
22 resentation of women among tenured or tenure-track
23 faculty or non-faculty researchers at doctorate-
24 granting institutions of higher education is less than
25 25 percent, according to the most recent data avail-

1 able from the National Center for Science and Engi-
2 neering Statistics.

3 (5) ORGANIZATIONS ELIGIBLE TO CARRY OUT
4 WORKSHOPS.—Federal science agencies may carry
5 out the program of workshops under this subsection
6 by making grants to eligible organizations. In addi-
7 tion to any other organizations made eligible by the
8 Federal science agencies, the following organizations
9 are eligible for grants under this subsection:

10 (A) Nonprofit scientific and professional
11 societies and organizations that represent one
12 or more STEM disciplines.

13 (B) Nonprofit organizations that have the
14 primary mission of advancing the participation
15 of women or underrepresented minorities in
16 STEM.

17 (6) CHARACTERISTICS OF WORKSHOPS.—The
18 workshops shall have the following characteristics:

19 (A) Invitees to workshops shall include at
20 least—

21 (i) the chairs of departments in the
22 relevant STEM discipline or disciplines
23 from at least the top 50 institutions of
24 higher education, as determined by the
25 amount of Federal research and develop-

1 ment funds obligated to each institution of
2 higher education in the prior year based on
3 data available from the National Science
4 Foundation; and

5 (ii) in the case of Federal laboratories,
6 individuals with personnel management re-
7 sponsibilities comparable to those of an in-
8 stitution of higher education department
9 chair.

10 (B) Activities at the workshops shall in-
11 clude research presentations and interactive dis-
12 cussions or other activities that increase the
13 awareness of the existence of implicit bias in re-
14 cruitment, hiring, tenure review, promotion, and
15 other forms of formal recognition of individual
16 achievement for faculty and other federally
17 funded STEM researchers and shall provide
18 strategies to overcome such bias.

19 (C) Research presentations and other
20 workshop programs, as appropriate, shall in-
21 clude a discussion of the unique challenges
22 faced by underrepresented sub-groups, includ-
23 ing minority women, minority men, and first
24 generation minority graduates in research.

1 (D) Workshop programs shall include in-
2 formation on best practices for mentoring un-
3 dergraduate and graduate women and under-
4 represented minority students.

5 (7) DATA ON WORKSHOPS.—Any proposal for
6 funding by an organization seeking to carry out a
7 workshop under this subsection shall include a de-
8 scription of how such organization will—

9 (A) collect data on the rates of attendance
10 by invitees in workshops, including information
11 on the home institution and department of
12 attendees, and the rank of faculty attendees;

13 (B) conduct attitudinal surveys on work-
14 shop attendees before and after the workshops;
15 and

16 (C) collect follow-up data on any relevant
17 institutional policy or practice changes reported
18 by attendees not later than one year after at-
19 tendance in such a workshop.

20 (8) REPORT TO NSF.—Organizations receiving
21 funding to carry out workshops under this sub-
22 section shall report the data required in paragraph
23 (7) to the Director of the National Science Founda-
24 tion in such form as required by such Director.

1 (d) REPORT TO CONGRESS.—Not later than 4 years
2 after the date of enactment of this Act, the Director of
3 the National Science Foundation shall submit a report to
4 Congress that includes—

5 (1) a summary and analysis of the types and
6 frequency of activities and policies developed and
7 carried out under subsection (a) based on the re-
8 ports submitted under paragraph (4) of such sub-
9 section; and

10 (2) a description and evaluation of the status
11 and effectiveness of the program of workshops re-
12 quired under subsection (c), including a summary of
13 any data reported under paragraph (8) of such sub-
14 section.

15 (e) AUTHORIZATION OF APPROPRIATIONS.—There
16 are authorized to be appropriated to the Director of the
17 National Science Foundation \$2,000,000 in each of fiscal
18 years 2018 through 2022 to carry out this section.

19 **SEC. 8. RESEARCH AND DISSEMINATION AT THE NATIONAL**
20 **SCIENCE FOUNDATION.**

21 (a) IN GENERAL.—The Director of the National
22 Science Foundation shall award research grants and carry
23 out dissemination activities consistent with the purposes
24 of this Act, including—

1 (1) research grants to analyze the record-level
2 data collected under section 4 and section 6, con-
3 sistent with policies to ensure the privacy of individ-
4 uals identifiable by such data;

5 (2) research grants to study best practices for
6 work-life accommodation;

7 (3) research grants to study the impact of poli-
8 cies and practices that are implemented under this
9 Act or that are otherwise consistent with the pur-
10 poses of this Act;

11 (4) collaboration with other Federal science
12 agencies and professional associations to exchange
13 best practices, harmonize work-life accommodation
14 policies and practices, and overcome common bar-
15 riers to work-life accommodation;

16 (5) collaboration with institutions of higher
17 education in order to clarify and catalyze the adop-
18 tion of a coherent and consistent set of work-life ac-
19 commodation policies and practices; and

20 (6) research grants to study the use of stand-
21 ardized graduate student admission exams and its
22 impact on the recruitment, retention, and success of
23 women, underrepresented minorities, and first gen-
24 eration graduates in graduate STEM degree pro-
25 grams.

1 (b) AUTHORIZATION OF APPROPRIATIONS.—There
2 are authorized to be appropriated to the Director of the
3 National Science Foundation \$5,000,000 in each of fiscal
4 years 2018 through 2022 to carry out this section.

5 **SEC. 9. REPORT TO CONGRESS.**

6 Not later than 4 years after the date of enactment
7 of this Act, the Director shall submit a report to Congress
8 that includes—

9 (1) a description and evaluation of the status
10 and usage of caregiver policies at all Federal science
11 agencies, including any recommendations for revis-
12 ing or expanding such policies;

13 (2) a description of any significant updates to
14 the policies for review of Federal research grants re-
15 quired under section 5, and any evidence of the im-
16 pact of such policies on the review or awarding of
17 Federal research grants; and

18 (3) a description and evaluation of the status of
19 Federal laboratory policies and practices required
20 under section 7(b), including any recommendations
21 for revising or expanding such policies.

1 **SEC. 10. NATIONAL SCIENCE FOUNDATION SUPPORT FOR**
2 **INCREASING DIVERSITY AMONG STEM FAC-**
3 **ULTY AT INSTITUTIONS OF HIGHER EDU-**
4 **CATION.**

5 (a) GRANTS.—The Director of the National Science
6 Foundation shall award grants to institutions of higher
7 education (or consortia thereof) for the development of in-
8 novative reform efforts designed to increase the recruit-
9 ment, retention, and advancement of individuals from
10 underrepresented minority groups in academic STEM ca-
11 reers.

12 (b) MERIT REVIEW; COMPETITION.—Grants shall be
13 awarded under this section on a merit-reviewed, competi-
14 tive basis.

15 (c) USE OF FUNDS.—Activities supported by grants
16 under this section may include—

17 (1) institutional assessment activities, such as
18 data analyses and policy review, in order to identify
19 and address specific issues in the recruitment, reten-
20 tion, and advancement of faculty members from
21 underrepresented minority groups;

22 (2) implementation of institution-wide improve-
23 ments in workload distribution, such that faculty
24 members from underrepresented minority groups are
25 not disadvantaged in the amount of time available to
26 focus on research, publishing papers, and engaging

1 in other activities required to achieve tenure status
2 and run a productive research program;

3 (3) development and implementation of training
4 courses for administrators and search committee
5 members to ensure that candidates from underrep-
6 resented minority groups are not subject to implicit
7 biases in the search and hiring process;

8 (4) development and hosting of intra- or inter-
9 institutional workshops to propagate best practices
10 in recruiting, retaining, and advancing faculty mem-
11 bers from underrepresented minority groups;

12 (5) professional development opportunities for
13 faculty members from underrepresented minority
14 groups;

15 (6) activities aimed at making undergraduate
16 STEM students from underrepresented minority
17 groups aware of opportunities for academic careers
18 in STEM fields;

19 (7) activities to identify and engage exceptional
20 graduate students from underrepresented minority
21 groups at various stages of their studies and to en-
22 courage them to enter academic careers; and

23 (8) other activities consistent with subsection
24 (a), as determined by the Director of the National
25 Science Foundation.

1 (d) SELECTION PROCESS.—

2 (1) APPLICATION.—An institution of higher
3 education (or consortia thereof) seeking funding
4 under this section shall submit an application to the
5 Director of the National Science Foundation at such
6 time, in such manner, and containing such informa-
7 tion and assurances as such Director may require.
8 The application shall include, at a minimum, a de-
9 scription of—

10 (A) the reform effort that is being pro-
11 posed for implementation by the institution of
12 higher education;

13 (B) any available evidence of specific dif-
14 ficulties in the recruitment, retention, and ad-
15 vancement of faculty members from underrep-
16 resented minority groups in STEM academic
17 careers within the institution of higher edu-
18 cation submitting an application, and how the
19 proposed reform effort would address such
20 issues;

21 (C) how the institution of higher education
22 submitting an application plans to sustain the
23 proposed reform effort beyond the duration of
24 the grant; and

1 (D) how the success and effectiveness of
2 the proposed reform effort will be evaluated and
3 assessed in order to contribute to the national
4 knowledge base about models for catalyzing in-
5 stitutional change.

6 (2) REVIEW OF APPLICATIONS.—In selecting
7 grant recipients under this section, the Director of
8 the National Science Foundation shall consider, at a
9 minimum—

10 (A) the likelihood of success in under-
11 taking the proposed reform effort at the institu-
12 tion of higher education submitting the applica-
13 tion, including the extent to which the adminis-
14 trators of the institution are committed to mak-
15 ing the proposed reform effort a priority;

16 (B) the degree to which the proposed re-
17 form effort will contribute to change in institu-
18 tional culture and policy such that greater value
19 is placed on the recruitment, retention, and ad-
20 vancement of faculty members from underrep-
21 resented minority groups;

22 (C) the likelihood that the institution of
23 higher education will sustain or expand the pro-
24 posed reform effort beyond the period of the
25 grant; and

1 (D) the degree to which evaluation and as-
2 sessment plans are included in the design of the
3 proposed reform effort.

4 (3) GRANT DISTRIBUTION.—The Director of
5 the National Science Foundation shall ensure, to the
6 extent practicable, that grants awarded under this
7 section are made to a variety of types of institutions
8 of higher education.

9 (e) AUTHORIZATION OF APPROPRIATIONS.—There
10 are authorized to be appropriated to the Director of the
11 National Science Foundation \$10,000,000 in each of fiscal
12 years 2018 through 2022 to carry out this section.

13 **SEC. 11. NATIONAL SCIENCE FOUNDATION SUPPORT FOR**
14 **BROADENING PARTICIPATION IN UNDER-**
15 **GRADUATE STEM EDUCATION.**

16 (a) GRANTS.—The Director of the National Science
17 Foundation shall award grants to institutions of higher
18 education (or consortia thereof) to implement or expand
19 research-based reforms in undergraduate STEM edu-
20 cation for the purpose of recruiting and retaining students
21 from minority groups who are underrepresented in STEM
22 fields, with a priority focus on natural science and engi-
23 neering fields.

1 (b) MERIT REVIEW; COMPETITION.—Grants shall be
2 awarded under this section on a merit-reviewed, competi-
3 tive basis.

4 (c) USE OF FUNDS.—Activities supported by grants
5 under this section may include—

6 (1) implementation or expansion of innovative,
7 research-based approaches to broaden participation
8 of underrepresented minority groups in STEM
9 fields;

10 (2) implementation or expansion of bridge, co-
11 hort, tutoring, or mentoring programs designed to
12 enhance the recruitment and retention of students
13 from underrepresented minority groups in STEM
14 fields;

15 (3) implementation or expansion of outreach
16 programs linking institutions of higher education
17 and K–12 school systems in order to heighten
18 awareness among pre-college students from under-
19 represented minority groups of opportunities in col-
20 lege-level STEM fields and STEM careers;

21 (4) implementation or expansion of faculty de-
22 velopment programs focused on improving retention
23 of undergraduate STEM students from underrep-
24 resented minority groups;

1 (5) implementation or expansion of mechanisms
2 designed to recognize and reward faculty members
3 who demonstrate a commitment to increasing the
4 participation of students from underrepresented mi-
5 nority groups in STEM fields;

6 (6) expansion of successful reforms aimed at in-
7 creasing the number of STEM students from under-
8 represented minority groups beyond a single course
9 or group of courses to achieve reform within an en-
10 tire academic unit, or expansion of successful reform
11 efforts beyond a single academic unit to other
12 STEM academic units within an institution of high-
13 er education;

14 (7) expansion of opportunities for students from
15 underrepresented minority groups to conduct STEM
16 research in industry, at Federal labs, and at inter-
17 national research institutions or research sites;

18 (8) provision of stipends for students from
19 underrepresented minority groups participating in
20 research;

21 (9) development of research collaborations be-
22 tween research-intensive universities and primarily
23 undergraduate minority-serving institutions;

24 (10) support for graduate students and post-
25 doctoral fellows from underrepresented minority

1 groups to participate in instructional or assessment
2 activities at primarily undergraduate institutions, in-
3 cluding primarily undergraduate minority-serving in-
4 stitutions and 2-year institutions of higher edu-
5 cation; and

6 (11) other activities consistent with subsection
7 (a), as determined by the Director of the National
8 Science Foundation.

9 (d) SELECTION PROCESS.—

10 (1) APPLICATION.—An institution of higher
11 education (or consortia thereof) seeking a grant
12 under this section shall submit an application to the
13 Director of the National Science Foundation at such
14 time, in such manner, and containing such informa-
15 tion and assurances as such Director may require.

16 The application shall include, at a minimum—

17 (A) a description of the proposed reform
18 effort;

19 (B) a description of the research findings
20 that will serve as the basis for the proposed re-
21 form effort or, in the case of applications that
22 propose an expansion of a previously imple-
23 mented reform, a description of the previously
24 implemented reform effort, including data about
25 the recruitment, retention, and academic

1 achievement of students from underrepresented
2 minority groups;

3 (C) evidence of an institutional commit-
4 ment to, and support for, the proposed reform
5 effort, including a long-term commitment to im-
6 plement successful strategies from the current
7 reform beyond the academic unit or units in-
8 cluded in the grant proposal;

9 (D) a description of existing or planned in-
10 stitutional policies and practices regarding fac-
11 ulty hiring, promotion, tenure, and teaching as-
12 signment that reward faculty contributions to
13 improving the education of students from
14 underrepresented minority groups in STEM;
15 and

16 (E) how the success and effectiveness of
17 the proposed reform effort will be evaluated and
18 assessed in order to contribute to the national
19 knowledge base about models for catalyzing in-
20 stitutional change.

21 (2) REVIEW OF APPLICATIONS.—In selecting
22 grant recipients under this section, the Director of
23 the National Science Foundation shall consider, at a
24 minimum—

1 (A) the likelihood of success of the pro-
2 posed reform effort at the institution submit-
3 ting the application, including the extent to
4 which the faculty, staff, and administrators of
5 the institution are committed to making the
6 proposed institutional reform a priority of the
7 participating academic unit or units;

8 (B) the degree to which the proposed re-
9 form effort will contribute to change in institu-
10 tional culture and policy such that greater value
11 is placed on faculty engagement in the retention
12 of students from underrepresented minority
13 groups;

14 (C) the likelihood that the institution will
15 sustain or expand the proposed reform effort
16 beyond the period of the grant; and

17 (D) the degree to which evaluation and as-
18 sessment plans are included in the design of the
19 proposed reform effort.

20 (3) PRIORITY.—For applications that include
21 an expansion of existing reforms beyond a single
22 academic unit, the Director of the National Science
23 Foundation shall give priority to applications for
24 which a senior institutional administrator, such as a

1 dean or other administrator of equal or higher rank,
2 serves as the principal investigator.

3 (4) GRANT DISTRIBUTION.—The Director of
4 the National Science Foundation shall ensure, to the
5 extent practicable, that grants awarded under this
6 section are made to a variety of types of institutions
7 of higher education, including 2-year and minority-
8 serving institutions of higher education.

9 (e) EDUCATION RESEARCH.—

10 (1) IN GENERAL.—All grants made under this
11 section shall include an education research compo-
12 nent that will support the design and implementa-
13 tion of a system for data collection and evaluation
14 of proposed reform efforts in order to build the
15 knowledge base on promising models for increasing
16 recruitment and retention of students from under-
17 represented minority groups in STEM education at
18 the undergraduate level across a diverse set of insti-
19 tutions.

20 (2) DISSEMINATION.—The Director of the Na-
21 tional Science Foundation shall coordinate with rel-
22 evant Federal agencies in disseminating the results
23 of the research under this subsection to ensure that
24 best practices in broadening participation in STEM
25 education at the undergraduate level are made read-

1 ily available to all institutions of higher education,
2 other Federal agencies that support STEM pro-
3 grams, non-Federal funders of STEM education,
4 and the general public.

5 (f) AUTHORIZATION OF APPROPRIATIONS.—There
6 are authorized to be appropriated to the Director of the
7 National Science Foundation \$15,000,000 in each of fiscal
8 years 2018 through 2022 to carry out this section.

9 **SEC. 12. DEFINITIONS.**

10 In this Act:

11 (1) DIRECTOR.—The term “Director” means
12 the Director of the Office of Science and Technology
13 Policy (“OSTP”).

14 (2) FEDERAL LABORATORY.—The term “Fed-
15 eral laboratory” has the meaning given such term in
16 section 4 of the Stevenson-Wydler Technology Inno-
17 vation Act of 1980 (15 U.S.C. 3703).

18 (3) FEDERAL SCIENCE AGENCY.—The term
19 “Federal science agency” means any Federal agency
20 with not less than \$100,000,000 in research and de-
21 velopment expenditures in fiscal year 2016.

22 (4) INSTITUTION OF HIGHER EDUCATION.—The
23 term “institution of higher education” has the
24 meaning given such term in section 101(a) of the
25 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

1 (5) INTERAGENCY WORKING GROUP ON INCLU-
2 SION IN STEM.—The term “interagency working
3 group on inclusion in STEM” means the interagency
4 working group established by section 308 of the
5 American Innovation and Competitiveness Act (42
6 U.S.C. 6626).

7 (6) STEM.—The term “STEM” means the
8 academic and professional disciplines of science,
9 technology, engineering, and mathematics.

○