

115TH CONGRESS
2D SESSION

H. R. 5509

To direct the National Science Foundation to provide grants for research about STEM education approaches and the STEM-related workforce, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 13, 2018

Mr. MCCARTHY (for himself and Mr. SMITH of Texas) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

A BILL

To direct the National Science Foundation to provide grants for research about STEM education approaches and the STEM-related workforce, 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.**

4 This Act may be cited as the “Innovations in Men-
5 toring, Training, and Apprenticeships Act”.

6 **SEC. 2. FINDINGS.**

7 Congress finds the following:

8 (1) To remain competitive in the global econ-
9 omy, foster greater innovation, and provide a foun-

1 dation for shared prosperity, the United States
2 needs a workforce with the right mix of skills to
3 meet the diverse needs of the economy.

4 (2) Evidence indicates that the returns on in-
5 vestments in technical skills in the labor market are
6 strong when students successfully complete their
7 training and gain credentials sought by employers.

8 (3) The responsibility for developing and sus-
9 taining a skilled technical workforce is fragmented
10 across many groups, including educators; students;
11 workers; employers; Federal, State, and local govern-
12 ments; labor organizations; and civic associations.
13 Such groups need to be able to coordinate and co-
14 operate successfully with each other.

15 (4) Coordination among students, community
16 colleges, secondary and post-secondary institutions,
17 and employers would improve educational outcomes.

18 (5) Promising experiments currently underway
19 may guide innovation and reform, but scalability of
20 some of those experiments has not yet been tested.

21 (6) Evidence suggests that integration of aca-
22 demic education, technical training, and hands-on
23 work experience improves outcomes and return on
24 investment for students in secondary and post-sec-

1 ondary education and for skilled technical workers in
2 different career stages.

3 (7) Outcomes show that mentoring can increase
4 STEM student engagement and the rate of comple-
5 tion of STEM post-secondary degrees.

6 **SEC. 3. NATIONAL SCIENCE FOUNDATION STEM INNOVA-**
7 **TION AND APPRENTICESHIP GRANTS.**

8 (a) ESTABLISHMENT.—The Director of the National
9 Science Foundation shall award competitive grants to eli-
10 gible applicants in accordance with this section.

11 (b) COORDINATION.—In carrying out this section, the
12 Director shall consult and cooperate with the programs
13 and policies of other relevant Federal agencies to avoid
14 duplication with, and enhance the effectiveness of, the pro-
15 vision of grants under this section.

16 (c) GRANTS FOR ASSOCIATE DEGREE PROGRAMS IN
17 STEM FIELDS.—

18 (1) IN GENERAL.—The Director of the National
19 Science Foundation shall award competitive grants
20 to community colleges to develop or improve asso-
21 ciate degree and certificate programs in STEM
22 fields in which there is significant workforce demand
23 in the region of the community college receiving the
24 award and a need to strengthen the global competi-
25 tiveness of affected companies.

1 (2) APPLICATION.—In considering applications
2 for grants under paragraph (1), the Director shall
3 prioritize—

4 (A) applicants that consist of a partnership
5 between the applying community college and in-
6 dividual employers or an employer consortia,
7 and may include a university or other organiza-
8 tion with demonstrated expertise in academic
9 program development;

10 (B) applications that demonstrate current
11 and future workforce demand in occupations di-
12 rectly related to the proposed associate degree
13 or certificate program.

14 (C) applications that include commitments
15 by the partnering employers or employer con-
16 sortia to offer apprenticeships, internships or
17 other applied learning opportunities to students
18 enrolled in the proposed associate degree pro-
19 gram; and

20 (D) applications that include outreach
21 plans and goals for recruiting and enrolling
22 women and other historically underrepresented
23 individuals in STEM studies and careers in the
24 proposed associate degree program.

1 (3) FUNDING.—The National Science Founda-
2 tion shall devote not less than \$20,000,000 to
3 awards described in this subsection, which shall in-
4 clude not less than \$5,000,000 for each of fiscal
5 years 2018 through 2021, subject to the availability
6 of appropriations, to come from amounts made avail-
7 able for the Education and Human Resources Direc-
8 torate. This subsection shall be carried out using
9 funds otherwise appropriated by law after the date
10 of enactment of this Act.

11 (d) GRANTS FOR STEM DEGREE APPLIED LEARN-
12 ING OPPORTUNITIES.—

13 (1) IN GENERAL.—The Director of the National
14 Science Foundation shall award competitive grants
15 to universities partnering with employers or em-
16 ployer consortia that commit to offering apprentice-
17 ships, internships, research opportunities, or applied
18 learning experiences to enrolled university students
19 in identified four-year STEM degree programs.

20 (2) APPLICATION.—In considering applications
21 for grants under paragraph (1), the Director shall
22 prioritize—

23 (A) applicants that consist of a partnership
24 between—

25 (i) the applying university; and

1 (ii) individual employers or an em-
2 ployer consortia;

3 (B) applications that demonstrate current
4 and future workforce demand in occupations di-
5 rectly related to selected STEM fields; and

6 (C) applications that include outreach
7 plans and goals for recruiting and enrolling
8 women and other populations historically under-
9 represented in STEM.

10 (3) FUNDING.—The National Science Founda-
11 tion shall devote not less than \$10,000,000 to
12 awards described in this subsection, which shall in-
13 clude not less than \$2,500,000 for each of fiscal
14 years 2018 through 2021, subject to the availability
15 of appropriations, to come from amounts made avail-
16 able for the Education and Human Resources Direc-
17 torate. This subsection shall be carried out using
18 funds otherwise appropriated by law after the date
19 of enactment of this Act.

20 (e) GRANTS FOR COMPUTER-BASED AND ONLINE
21 STEM EDUCATION COURSES.—

22 (1) IN GENERAL.—The Director of the National
23 Science Foundation shall award competitive grants
24 to institutions of higher education or nonprofit orga-
25 nizations to conduct research on student outcomes

1 and determine best practices and scalability of com-
2 puter-based and online courses for technical skills
3 training.

4 (2) RESEARCH AREAS.—The research areas eli-
5 gible for funding under this subsection may in-
6 clude—

7 (A) post-secondary courses for technical
8 training for STEM occupations;

9 (B) improving high-school level vocational
10 training in STEM subjects;

11 (C) encouraging and sustaining interest
12 and achievement levels in STEM subjects
13 among women and other populations histori-
14 cally underrepresented in STEM studies and
15 careers; and

16 (D) combining computer-based and online
17 STEM education and training with traditional
18 mentoring and other mentoring arrangements,
19 apprenticeships, internships, and other applied
20 learning opportunities.

21 (3) FUNDING.—The National Science Founda-
22 tion shall devote not less than \$10,000,000 to
23 awards described in this subsection, which shall in-
24 clude not less than \$2,500,000 for each of fiscal
25 years 2018 through 2021, subject to the availability

1 of appropriations, to come from amounts made avail-
2 able for the Education and Human Resources Direc-
3 torate. This subsection shall be carried out using
4 funds otherwise appropriated by law after the date
5 of enactment of this Act.

6 **SEC. 4. RESEARCH ON EFFICIENCY OF SKILLED TECH-**
7 **NICAL LABOR MARKETS.**

8 (a) **EFFICIENCY OF SKILLED TECHNICAL LABOR**
9 **MARKETS.**—The Directorate of Social, Behavioral & Eco-
10 nomic Sciences of the National Science Foundation, in co-
11 ordination with the Secretary of Labor, shall support re-
12 search that improves the efficiency of skilled technical
13 labor markets in the United States, including research on
14 labor market analysis innovations, data and information
15 sciences, electronic information tools and methodologies,
16 and metrics.

17 (b) **COMPARISON OF UNITED STATES WORK-**
18 **FORCE.**—

19 (1) **RESEARCH.**—The National Science Founda-
20 tion shall commission research that compares and
21 contrasts skilled technical workforce development be-
22 tween the United States and other developed coun-
23 tries, including the diversity of skilled technical and
24 professional workforces, to the extent feasible.

1 (2) REPORT.—Not later than 3 years after the
2 date of enactment of this Act, the Director of the
3 National Science Foundation shall submit to Con-
4 gress a report on the results of the study under
5 paragraph (1).

6 (c) SKILLED TECHNICAL WORKFORCE.—

7 (1) REVIEW.—The National Center for Science
8 and Engineering Statistics of the National Science
9 Foundation shall consult and coordinate with other
10 relevant Federal statistical agencies to explore the
11 feasibility of expanding its surveys to include the col-
12 lection of objective data on the skilled technical
13 workforce.

14 (2) REPORT.—Not later than 1 year after the
15 date of enactment of this Act, the Director of the
16 National Science Foundation shall submit to Con-
17 gress a report containing the progress made in ex-
18 panding the National Center for Science and Engi-
19 neering Statistics surveys to include the skilled tech-
20 nical workforce. Such report shall include a plan for
21 multi-agency collaboration in order to effect data
22 collection and reporting of data on the skilled tech-
23 nical workforce.

1 **SEC. 5. SPENDING LIMITATION.**

2 No additional funds are authorized to be appro-
3 priated to carry out this Act and the amendments made
4 by this Act, and this Act and such amendments shall be
5 carried out using amounts otherwise available for such
6 purpose.

7 **SEC. 6. EVALUATION AND REPORT.**

8 (a) EVALUATION.—

9 (1) IN GENERAL.—Not later than 2 years after
10 the date of enactment of this Act, the Director of
11 the Foundation shall evaluate the grants and pro-
12 grams provided under this Act.

13 (2) REQUIREMENTS.—In conducting the evalua-
14 tion under paragraph (1), the Director shall use a
15 common set of benchmarks and assessment tools to
16 identify best practices and materials developed or
17 demonstrated by the research conducted pursuant to
18 such grants and programs.

19 (b) REPORT ON EVALUATIONS.—Not later than 180
20 days after the completion of the evaluation under sub-
21 section (a), the Director of the Foundation shall submit
22 to Congress and make widely available to the public a re-
23 port that includes—

24 (1) the results of the evaluation; and

1 (2) any recommendations for administrative
2 and legislative action that could optimize the effective-
3 tiveness of the grants and programs under this Act.

4 (c) CONSULTATION.—In carrying out this section, the
5 Director of the Foundation shall consult the programs and
6 policies of other relevant Federal agencies to avoid dupli-
7 cation with, and enhance the effectiveness of, the grants
8 and programs under this Act.

9 **SEC. 7. DEFINITIONS.**

10 In this Act:

11 (1) STEM.—The term “STEM” means science,
12 technology, engineering, and mathematics, including
13 computer science.

14 (2) COMMUNITY COLLEGE.—The term “commu-
15 nity college” has the meaning given the term “junior
16 and community college” in section 312 of the Higher
17 Education Act of 1965 (20 U.S.C. 1058).

18 (3) INSTITUTION OF HIGHER EDUCATION.—The
19 term “institution of higher education” has the
20 meaning given such term in section 101(a) of the
21 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

22 (4) REGION.—The term “region” means a labor
23 market area, as such term is defined in section 3 of
24 the Workforce Innovation and Opportunity Act (29
25 U.S.C. 3102).

1 (5) SKILLED TECHNICAL WORKFORCE.—The
2 term “skilled technical workforce” means workers
3 with high school diplomas and two-year technical
4 training or certifications who employ significant lev-
5 els of STEM knowledge in their jobs.

6 (6) UNIVERSITY.—The term “university”
7 means a 4-year institution of higher education, as
8 defined in section 101(a) of the Higher Education
9 Act of 1965 (20 U.S.C. 1001(a)).

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