

EDUCATION AND HUMAN RESOURCES (EHR)**\$873,370,000****\$0 / 0%****Education and Human Resources (EHR) Funding**

(Dollars in Millions)

	FY 2017 Actual	FY 2018 (TBD)	FY 2019 Request	Change over FY 2017 Actual	
				Amount	Percent
Division of Research on Learning in Formal and Informal Settings (DRL)	\$222.62	-	\$202.98	-\$19.64	-8.8%
Division of Graduate Education (DGE)	272.11	-	258.55	-13.56	-5.0%
Division of Human Resource Development (HRD)	149.50	-	187.19	37.69	25.2%
Division of Undergraduate Education (DUE)	229.14	-	224.65	-4.49	-2.0%
Total	\$873.37	-	\$873.37	-	-

About EHR

The mission of EHR is to provide the research foundation to develop a science, technology, engineering, and mathematics (STEM)-literate public and diverse workforce that is ready to advance the frontiers of science and engineering for society. This research foundation has guided and shaped EHR's portfolio and priorities for more than 60 years. Although the EHR mission remains unchanged, the context in which the mission is enacted changes. Each decade brings new challenges and opportunities.

The progress of science and engineering depends on the education of discoverers—the future leaders and innovators in science and engineering. These discoverers will become part of the STEM and STEM-related workforce, including public and private sector, academic, policy, research, and teaching occupations. The progress of science and engineering also depends on a public that values and participates in the STEM enterprise through formal and informal education, public participation in scientific research, and civic engagement. The opportunities made possible by federal investments in STEM must be provided effectively to, and draw from, the full and diverse talent pool of the Nation.

The role of NSF, through EHR, within the federal government in supporting research on STEM education is unique. EHR programs fund crucial foundational, design and development, and implementation research that is made available to inform large investments at scale made by other agencies, organizations, and the private sector. The EHR research portfolio also supports a coherent suite of NSF-wide investments in undergraduate and graduate STEM education through strategic linkages with the discipline-specific needs of all NSF directorates and engagement in cross-directorate science and engineering initiatives. In addition, the EHR investments in preK-12 STEM education and informal STEM learning are focused, catalytic contributions that push the frontiers of effective learning and practice in those environments. Such work is foundational as a part of the national STEM education infrastructure.

Appropriations Language

For necessary expenses in carrying out science, mathematics and engineering education and human resources programs and activities pursuant to the National Science Foundation Act of 1950 (42 U.S.C. 1861 et seq.), including services as authorized by section 3109 of title 5, United States Code, authorized travel, and rental of conference rooms in the District of Columbia, ~~\$760,550,000~~, **\$873,370,000**, to remain available until September 30, ~~2019~~, **2020**.

Note.—A full-year 2018 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Act, 2018 (Division D of P.L. 115–56, as amended). The amounts included for 2018 reflect the annualized level provided by the continuing resolution.

Education and Human Resources
FY 2019 Summary Statement
(Dollars in Millions)

	Enacted/ Request	Unobligated Balance Available Start of Year	Unobligated Balance Available End of Year	Adjustments to Prior Year Accounts	Transfers	Obligations/ Estimates
FY 2017 Appropriation	\$880.00	\$5.37	-\$7.66	\$2.61	-\$6.95	\$873.37
FY 2018 Annualized CR	874.02	7.66				881.68
FY 2019 Total Request	873.37					873.37
\$ Change from FY 2018 Annualized CR						-\$8.31
% Change from FY 2018 Annualized CR						-0.9%

Explanation of Carryover

Within the Education and Human Resources (EHR) account, \$7.66 million was carried over into FY 2018.

Excellence Awards in Science and Engineering (EASE)

- Amount: \$4.21 million
- Reason: These carryover funds will be used to recognize recipients of the Presidential Awards for Excellence in Mathematics and Science Teaching and recipients of the Presidential Awards for Excellence in Science, Mathematics and Engineering Mentoring.
- Obligation: Anticipated FY 2018 Quarter 2

The remaining \$3.45 million consists of funds from selected projects that were not ready for obligation in FY 2017.

Major Investments

EHR Major Investments
(Dollars in Millions)

Area of Investment	FY 2017 Actual	FY 2018 (TBD)	FY 2019 Request	Change over FY 2017 Actual	
				Amount	Percent
GRFP	\$158.70	-	\$135.36	-\$23.34	-14.7%
NSF Research Traineeship	30.97	-	41.19	10.22	33.0%
NSF I-Corps™	1.52	-	1.55	0.03	2.0%
SaTC	54.95	-	55.00	0.05	0.1%
Understanding the Brain	11.00	-	7.00	-4.00	-36.4%
<i>BRAIN Initiative</i>	2.00	-	2.00	-	-
NSF's Big Ideas					
<i>NSF INCLUDES</i>	3.58	-	20.00	16.42	458.7%

Major investments may have funding overlap and thus should not be summed.

Funding Profile

EHR Funding Profile			
	FY 2017		
	Actual	FY 2018	FY 2019
	Estimate	(TBD)	Estimate
Statistics for Competitive Awards:			
Number of Proposals	4,293	-	4,300
Number of New Awards	898	-	900
Funding Rate	21%	-	21%
Statistics for Research Grants:			
Number of Research Grant Proposals	3,134	-	3,200
Number of Research Grants	541	-	600
Funding Rate	17%	-	19%
Median Annualized Award Size	\$199,260	-	\$199,800
Average Annualized Award Size	\$303,529	-	\$332,900
Average Award Duration, in years	3.0	-	2.9

People Involved in EHR Activities

Number of People Involved in EHR Activities			
	FY 2017		
	Actual	FY 2018	FY 2019
	Estimate	(TBD)	Estimate
Senior Researchers	6,400	-	6,400
Other Professionals	2,175	-	2,200
Postdoctoral Associates	350	-	350
Graduate Students	10,800	-	10,800
Undergraduate Students	16,000	-	16,000
K-12 Teachers	36,200	-	36,200
K-12 Students	81,900	-	81,900
Total Number of People	153,825	-	153,850

Program Monitoring and Evaluation

EHR continues its strong emphasis on evidence-based decision making, as well as its commitment to generating robust evidence to inform the development, management, and assessment of its programs and portfolios of investment. EHR’s evaluation priorities for FY 2019 include ensuring the efficient use of available administrative data assets and supporting and coordinating evidence-building and use across our STEM education and workforce programs. To accomplish this goal, EHR will extend a review of existing data assets and their use for monitoring and evaluative purposes and develop a multi-year learning agenda for assessing our STEM human capital development programs. Also, the ADVANCE program will initiate program evaluation in FY 2018, while evaluations for IUSE and the Graduate Research Internship Program (GRIP) are tentatively planned for FY 2018 or early in FY 2019.

EHR-based infrastructure and processes will continue to be developed in collaboration with the NSF Evaluation and Assessment Capability, as appropriate. EHR experts in evaluation will continue to provide expertise as needed within NSF and to other federal agencies engaged in STEM education program evaluation as a means of sharing best practices, developing tools for portfolio and data analysis, working

toward the use of common metrics and instruments, and building collaborative expertise for STEM education evaluation across agencies.

In FY 2018, EHR will continue to collaborate with the Institute of Education Sciences (IES) to update the Common Guidelines for Education Research and Development, which was jointly released in 2013. EHR is taking the lead in the development of a companion document that will address replication and reproducibility, while IES is focused on a second document that will address data science. It is anticipated that the new publications will be released in FY 2018.

Committees of Visitors (COV):

- EHR is continuing a transition from COVs focusing on individual programs to division-wide COVs that comprehensively examine all programs in the relevant division. EHR's first division-wide COV reviewed DRL in March 2015, and the second reviewed HRD in November 2016
- In October 2016, a COV composed of nine external experts met to review four programs managed by DUE: Transforming Undergraduate Education in STEM (TUES), STEM Talent Expansion Program (STEP), Widening Implementation & Demonstration of Evidence-Based Reforms (WIDER), and Improving Undergraduate STEM Education (IUSE: EHR). (TUES, STEP, and WIDER were consolidated to form IUSE: EHR in FY 2014.) The COV chair presented a summary of the committee's recommendations, and the COV report was discussed and accepted, at the EHR Advisory Committee meeting held on November 30–December 1, 2016.
- In October 2016, another COV composed of seven external experts met to review the EHR Core Research program, which spans all four EHR divisions. The COV chair presented a summary of the committee's recommendations, and the COV report was discussed and accepted, at the EHR Advisory Committee meeting held on November 30–December 1, 2016.
- In late November 2016, a COV composed of nine external experts met to review the six programs managed by HRD—i.e., ADVANCE, Alliances for Graduate Education and the Professoriate (AGEP), Centers of Research Excellence in Science and Technology (CREST), Historically Black Colleges and Universities – Undergraduate Program (HBCU-UP), Louis Stokes Alliances for Minority Participation (LSAMP), and TCUP. The COV chair presented a summary of the COV's observations at the EHR Advisory Committee meeting held on November 30–December 1, 2016, and the COV's report was completed and then discussed and accepted at the June 2017 EHR Advisory Committee meeting.
- In fall 2018, DGE plans to hold a division-wide COV to review its programs—i.e., SFS NRT, and GRFP.
- In fall 2018, DUE also plans to hold a division-wide COV to review its programs—i.e., the Advanced Technological Education (ATE) program, IUSE: EHR, the NSF Scholarships in STEM (S-STEM) program, and the Robert Noyce Teacher Scholarship Program.

The Performance chapter provides details regarding the periodic reviews of programs and portfolios of programs by external Committees of Visitors and directorate Advisory Committees. Please see this chapter for additional information.

DIVISION OF RESEARCH ON LEARNING IN FORMAL AND INFORMAL SETTINGS (DRL)

\$202,980,000
-\$19,640,000 / -8.8%

DRL Funding
(Dollars in Millions)

	FY 2017 Actual	FY 2018 (TBD)	FY 2019 Request	Change over	
				FY 2017 Amount	Actual Percent
Total	\$222.62	-	\$202.98	-\$19.64	-8.8%
Learning and Learning Environments	25.63	-	25.63	-	-
EHR Core Research (ECR): STEM Learning	25.63	-	25.63	-	-
Broadening Participation & Institutional Capacity	145.11	-	144.71	-0.40	-0.3%
Advancing Informal STEM Learning (AISL)	62.90	-	62.50	-0.40	-0.6%
Discovery Research PreK-12 (DRK-12)	82.21	-	82.21	-	-
STEM Professional Workforce	51.88	-	32.64	-19.24	-37.1%
Science, Technology, Engineering, Mathematics + Computing (STEM + C) Partnerships ¹	51.88	-	32.64	-19.24	-37.1%

¹The STEM+C program will not run a new competition in FY2019. However, it will provide co-funding to other programs supporting research on computer science education, including partnering with CISE on the Computer Science for All: Research Practitioner Partnerships (CS for ALL: RPP) program. Other EHR programs (DRK-12, AISL, and ECR: STEM Learning) will expand their portfolios to further support research addressing computer science teaching and learning, including research on computational thinking and the integration of computing with other STEM disciplines.

DRL Summary

DRL invests in foundational research to advance understanding about STEM learning and teaching. Advances in STEM learning ultimately support individuals who pursue STEM careers, as well as the Nation’s STEM workforce more broadly. The DRL portfolio includes the design, implementation, and study of learning environments, models, and technologies intended to enable STEM learning for all students—particularly those who have been underrepresented in STEM—through both formal and informal STEM activities within formal education systems and beyond. DRL also provides direction for the EHR portfolio in techniques for measurement and assessment of learning outcomes.

FY 2019 priorities for DRL include:

- Invest across DRL programs in research and development at the early childhood level to foster STEM learning.
- Invest in research and development supporting computer science education, including research on computational thinking and the integration of computing with other STEM disciplines.
- Support research employing data science (associated with the Harnessing the Data Revolution Big Idea), neuroscience, and cyberlearning (associated with the Future of Work at the Human-Technology Frontier Big Idea) methodologies. This work will significantly advance the field's knowledge base on: STEM learning and learning environments; broadening participation and institutional capacity in STEM; and increasing retention for students traditionally underserved in STEM at the preK-12, undergraduate, and/or graduate level.
- Provide a focus on research and development on STEM learning cutting across formal and informal settings.
- Fund research and development related to understanding, measuring, and enhancing socioemotional skills, such as persistence, teamwork, and learning to learn, in the context of STEM education.

DIVISION OF GRADUATE EDUCATION (DGE)

\$258,550,000
-\$13,560,000 / -5.0%

DGE Funding
(Dollars in Millions)

	FY 2017 Actual	FY 2018 (TBD)	FY 2019 Request	Change over	
				FY 2017 Amount	Actual Percent
Total	\$272.11	-	\$258.55	-\$13.56	-5.0%
Learning and Learning Environments	11.51	-	11.03	-0.48	-4.2%
Project and Program Evaluation (PPE)	11.51	-	11.03	-0.48	-4.2%
STEM Professional Workforce	260.60	-	247.52	-13.08	-5.0%
CyberCorps®: Scholarship for Service (SFS)	54.95	-	55.00	0.05	0.1%
EHR Core Research (ECR): STEM Professional Workforce Preparation	15.98	-	15.97	-0.01	-0.1%
Graduate Research Fellowship (GRFP)	158.70	-	135.36	-23.34	-14.7%
NSF Research Traineeship (NRT)	30.97	-	41.19	10.22	33.0%

DGE Summary

DGE provides leadership across NSF for investments that support U.S. graduate students in STEM, and for improvement and innovation in graduate education to prepare tomorrow’s STEM leaders. DGE focuses on the development of the broad STEM professional workforce through graduate education.

FY 2019 priorities for DGE include:

- Maintain DGE’s SFS collaborations with other federal agencies to explore mechanisms through which members of this cybersecurity workforce can continue to contribute to the government throughout their careers. In addition, DGE will continue activities in the SFS program that strengthen and expand the capacity of universities to develop a diverse cadre of cybersecurity experts for the Nation.
- Continue the goal of GRFP to help build the U.S. STEM human capital necessary to ensure the Nation’s leadership in advancing innovations in science and engineering.
- Invest in NRT, including the IGE track.

In collaboration with BIO, DGE has administrative and intellectual responsibility for the implementation of the *NSF Strategic Framework for Investments in Graduate Education: FY 2016-FY 2020*.¹ DGE also leads the EHR evaluation portfolio (particularly in the area of human capital).

⁸www.nsf.gov/pubs/2016/nsf16074/nsf16074.pdf

DIVISION OF HUMAN RESOURCE DEVELOPMENT (HRD)

\$187,190,000
+\$37,690,000 / 25.2%

HRD Funding
(Dollars in Millions)

	FY 2017 Actual	FY 2018 (TBD)	FY 2019 Request	Change over	
				FY 2017 Actual Amount	Percent
Total	\$149.50	-	\$187.19	\$37.69	25.2%
Learning and Learning Environments	58.56	-	75.00	16.44	28.1%
ADVANCE	1.53	-	18.00	16.47	1074.2%
Alliances for Graduate Education and the Professoriate (AGEP)	8.01	-	8.00	-0.01	-0.1%
Historically Black Colleges and Universities Undergraduate Program (HBCU-UP)	35.01	-	35.00	-0.01	-0.0%
Tribal Colleges and Universities Program (TCUP)	14.01	-	14.00	-0.01	-0.1%
Broadening Participation & Institutional Capacity	62.61	-	83.88	21.27	34.0%
EHR Core Research (ECR): Broadening Participation and Institutional Capacity in STEM	12.88	-	12.88	-	-
IUSE: Hispanic Serving Institutions (HSI) Program ¹	-	-	5.00	5.00	N/A
Big Idea: NSF INCLUDES	3.58	-	20.00	16.42	457.9%
Louis Stokes Alliances for Minority Participation (LSAMP)	46.15	-	46.00	-0.15	-0.3%
STEM Professional Workforce	28.33	-	28.31	-0.02	-0.1%
Centers for Research Excellence in Science and Technology (CREST)	24.02	-	24.00	-0.02	-0.1%
Excellence Awards in Science and Engineering (EASE)	4.31	-	4.31	-	-

¹In FY 2017, the IUSE: HSI Program was funded at \$15.0 million within the Integrative Activities budget. These funds were carried over into FY 2018, and will be used for awards made in FY 2018. EHR is responsible for the management of this program.

HRD Summary

HRD provides support to grow the innovative and competitive U.S. STEM workforce by supporting the inclusion and success of individuals currently underrepresented in STEM and the institutions that serve them, and conducting research on effective mechanisms and models for achieving these objectives.

FY 2019 priorities for HRD include:

- Continue HRD’s role in NSF-wide activities to strengthen inclusion and broadening participating for all groups in STEM.
- Collaborate with all NSF directorates to encourage HBCU faculty to submit proposals to other directorates and enhance research capability at HBCUs.
- Encourage institutional collaboration with other federal agencies, state governments, national laboratories, private sector research labs, and K-12 schools, districts and state agencies to advance knowledge and education on research of significance to the Nation.
- Support programs with objectives to broaden participation and increase institutional capacity in STEM by increasing retention of students traditionally underserved in STEM.
- Support professional development for K-12 teachers and STEM educators and mentors, as well as the identification and recognition of outstanding educators in partnership with the Office of Science and Technology Policy.

DIVISION OF UNDERGRADUATE EDUCATION (DUE)

\$224,650,000
-\$4,490,000 / -2.0%

DUE Funding (Dollars in Millions)					
	FY 2017 Actual	FY 2018 Request	FY 2019 Request	Change over FY 2017 Actual	
				Amount	Percent
Total	\$229.14	-	\$224.65	-\$4.49	-2.0%
Learning and Learning Environments	100.12	-	110.10	9.98	10.0%
EHR Core Research (ECR): STEM Learning Environments	13.11	-	13.10	-0.01	-0.1%
IUSE: Hispanic Serving Institutions (HSI) Program ¹	-	-	10.00	10.00	N/A
Improving Undergraduate STEM Education (IUSE)	87.01	-	87.00	-0.01	-0.0%
STEM Professional Workforce	129.02	-	114.55	-14.47	-11.2%
Advanced Technological Education (ATE)	65.91	-	66.00	0.09	0.1%
NSF Innovation Corps (I-Corps™)	1.52	-	1.55	0.03	2.0%
Robert Noyce Teacher Scholarship Program (Noyce)	61.59	-	47.00	-14.59	-23.7%

¹In FY 2017, the IUSE: HSI Program was funded at \$15.0 million within the Integrative Activities budget. These funds were carried over into FY 2018, and will be used for awards made in FY 2018. EHR is responsible for the management of this program.

DUE Summary

DUE supports excellence in undergraduate STEM education for all students. To accomplish this mission, DUE funds projects that design, develop, and implement high-quality educational experiences, as well as the scientific research needed to evaluate the effectiveness of those experiences. The resulting STEM learning environments integrate cutting-edge science and education research results to improve learning for all undergraduates. DUE investments promote improved teaching practices across the full range of U.S. higher education: community colleges, four-year colleges, comprehensive public institutions, and research universities, including flagship, state-supported systems. In turn, improved STEM education opens multiple career pathways for undergraduates. For example, innovative educational programs at community colleges enable students to gain expertise in advanced technologies such as additive manufacturing, biotechnology, precision agriculture, nano-optics, or cybersecurity; this expertise can lead directly to employment in those sectors. At baccalaureate degree-granting institutions, STEM majors can pursue alternative teaching certification to enter the K-12 teaching workforce in high-need school districts. Overall, improvements in STEM education enhance student learning, which supports greater retention and degree attainment, broadening the pool of future STEM researchers, and helping meet workforce needs for STEM-knowledgeable individuals.

FY 2019 priorities for DUE include:

- Support and influence the nationwide movement to improve undergraduate STEM education through the creation and study of innovative learning environments for undergraduate STEM disciplinary and interdisciplinary learning. DUE also continues to be the main source of support across federal agencies for discipline-based educational research (DBER).² DBER translates disciplinary expertise and evidence from the learning sciences into physical and virtual tools, technologies, and other learning experiences. It then uses research and development strategies to iteratively improve these products. Through these design-research cycles, DBER has the potential to improve STEM learning at scale.

²Singer, Nielsen, and Schweingruber. "Discipline-based education research." *Washington, DC: The National Academies* (2012). Retrieved from: www.nap.edu/catalog/13362/discipline-based-education-research-understanding-and-improving-learning-in-undergraduate

- Focus on investments for improving mathematics learning and teaching, particularly in the first two years of college; improving data science learning; developing students' skills, work habits, and character as they gain STEM knowledge; and developing the next generation of researchers who will study STEM and undergraduate STEM education. In FY 2019, emphasis will be placed on increasing access to early research experiences and on institution-wide improvement in STEM education.
- Increase the population of diverse, innovative STEM and STEM-knowledgeable workers. To this end, DUE will also focus on improving the preparation of future K-12 teachers and highly skilled technicians in advanced technology industries. In FY 2019, special attention will be placed on attracting proposals to IUSE: EHR led by investigators from minority-serving community colleges, as well as investigators from two- and four- year institutions with prior funding from HBCU-UP and TCUP. All DUE programs will emphasize research and development on increasing the success of low income and other underrepresented undergraduate groups in making the transition from two-year to four-year STEM degree programs.

H-1B NONIMMIGRANT PETITIONER FEES

\$100,000,000

In FY 2019, H-1B Nonimmigrant Petitioner Fees are projected to be \$100.0 million.

H-1B Nonimmigrant Petitioner Fees Funding
(Dollars in Millions)

	FY 2017 Actual	FY 2018 Estimate	FY 2019 Request	FY 2019 Request Change Over	
				FY 2018 Estimate	
				Amount	Percent
H-1B Nonimmigrant Petitioner Fees Funding	\$119.48	\$142.00	\$100.00	-\$42.00	-29.6%

Beginning in FY 1999, Title IV of the American Competitiveness and Workforce Improvement Act of 1998 (P.L. 105-277) established an H-1B Nonimmigrant Petitioner Account in the general fund of the U.S. Treasury for fees collected for each petition for alien nonimmigrant status. That law required that a prescribed percentage of funds in the account be made available to NSF for low-income scholarships; grants for mathematics, engineering, or science enrichment courses; and systemic reform activities. In FY 2005, Public Law 108-447 reauthorized H-1B funding. NSF was provided with 40 percent of the total H-1B receipts collected. Thirty percent of H-1B receipts (75 percent of the receipts that NSF receives) are to be used for a low-income scholarship program, Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM). Ten percent of receipts (25 percent of the receipts that NSF receives) are designated for support of private-public partnerships in K-12 education through Innovative Technology Experiences for Students and Teachers (ITEST).

Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM).

The S-STEM program began in 1999 under P.L. 105-277. Originally, the program was named Computer Science, Engineering, and Mathematics Scholarships (CSEMS) and supported grants for scholarships to academically-talented students with demonstrated financial need pursuing associate, baccalaureate, or graduate degrees in computer science, computer technology, engineering, engineering technology, or mathematics. Grantee institutions awarded scholarships of up to \$2,500 per year for two years to eligible students. The CSEMS activity continued under the American Competitiveness in the 21st Century Act (P.L. 106-313) with a prescribed percentage of H-1B receipts (22 percent) which totaled approximately 59.5 percent of the total H-1B funding for NSF. P.L. 106-313 also amended P.L. 105-277 by increasing the maximum scholarship duration to four years and the annual stipend to \$3,125.

Under the Consolidated Appropriations Act, 2005 (P.L. 108-447), the prescribed percentage of H-1B receipts available for the low-income scholarship program was increased to 30 percent (approximately 75 percent of the total H-1B funding for NSF). Eligibility for the scholarships was expanded from the original fields of computer science, engineering, and mathematics to include “other technology and science programs designated by the Director.” The maximum annual scholarship award amount was raised from \$3,125 to \$10,000. Language also was added allowing NSF to use up to 50 percent of funds “for undergraduate programs for curriculum development, professional and workforce development, and to advance technological education.” As a result, the program was renamed in 2006 from CSEMS to S-STEM.

- Low-income Scholarship Program: S-STEM. The S-STEM program provides institutions with funds for student scholarships to encourage and enable academically talented U.S. students demonstrating financial need to enter the STEM workforce or STEM graduate school following completion of an associate, baccalaureate, or graduate degree in fields of science, technology, engineering, or

mathematics. The program emphasizes the importance of recruiting students to STEM disciplines, mentoring and supporting students through degree completion, and partnering with employers to facilitate student career placement in the STEM workforce.

Since its inception, the low-income scholarship program has received more than 6,500 proposals from all types of colleges and universities and has made 1,923 awards. In addition to scholarships, S-STEM awards also provide funding for student support activities featuring close involvement of faculty, student mentoring, academic support, curriculum development, and recognition of student accomplishments. Such activities are important in recruiting and retaining students in high-technology fields through graduation and into employment. In FY 2019, in addition to the long-standing scholarship support, all S-STEM projects will contribute to conduct research on interventions that affect associate or baccalaureate STEM degree attainment by academically talented U.S. students demonstrating financial need. Because S-STEM projects report much higher retention and graduation rates among their scholarship students than among other STEM majors, this research is important to understand this success so that effective practices can be used at scale. Approximately 90 awards are anticipated in FY 2019, with a continued emphasis on increasing involvement of community colleges, especially Hispanic-serving institutions. S-STEM activities in FY 2019 will leverage efforts in IUSE: EHR, LSAMP, and the HSI Program to enhance persistence of students. S-STEM will continue to be a partner in the NSF INCLUDES initiative. S-STEM programming and research also will align with NRT, with the goal of understanding and enhancing effective learning environments and pathways for students on the continuum from two-year to four-year to master's and doctoral degrees.

Private-Public Partnerships in K-12.

The American Competitiveness in the 21st Century Act (P.L. 106-313) amended P.L. 105-277 and changed the way petitioner fees were to be expended. P.L. 106-313 directed the remaining 40.5 percent of the total H-1B funding for NSF (15 percent of H-1B receipts) toward K-12 activities involving private-public partnerships in a range of areas such as materials development, student externships, and mathematics and science teacher professional development. The ITEST program was developed as a partnership activity in K-12 to increase opportunities for students and teachers to learn about, experience, and use information technologies within the context of STEM, including information technology (IT) courses. In FY 2005, P.L. 108-447 reduced the prescribed percentage of H-1B receipts available for private-public partnerships in K-12 to 10 percent (approximately 25 percent of the total H-1B funding for NSF).

- Private-Public Partnerships in K-12: ITEST. The ITEST program invests in K-12 activities that address the ongoing and growing need for STEM professionals and information technology workers in the U.S. and seeks solutions to help ensure the breadth and depth of the U.S. STEM workforce. ITEST funds activities for students and teachers that emphasize mathematics, science, and engineering careers, and emphasizes the importance of evaluation and research to understand the impact of such activities. The program supports the development, implementation, testing, and scale-up of models, STEM robotics projects, and research studies to improve the STEM workforce and build a student's capacity to participate in the STEM workforce. The solicitation places emphasis on capturing and establishing a reliable knowledge base about the dispositions toward and knowledge about STEM workforce skills in U.S. students.

Since its inception, the ITEST program has received 3,507 grant proposals and made 457 awards (including co-funded projects) that allow K-12 students and teachers to work closely with scientists, engineers, and other STEM professionals on extended research projects that promote awareness of STEM careers and interest in pursuing education pathways to those careers. Funded projects draw on a wide mix of local resources, including universities, industry, museums, science and technology centers, and school districts in order to identify the characteristics that attract a wide and diverse range of young

people to STEM careers, especially those students historically underrepresented in those careers. In FY 2019, ITEST will be a partner in the NSF INCLUDES initiative and will make approximately 25-30 awards.

H-1B Financial Activities from FY 2008 - FY 2017

(Dollars in Millions)

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Receipts	\$104.43	\$88.66	\$91.22	\$106.11	\$128.99	\$120.94	\$132.49	\$143.00	\$138.80	\$141.07
Unobligated Balance										
start of year	\$63.37	\$50.83	\$52.62	\$50.15	\$60.93	\$99.31	\$108.31	\$111.39	\$116.02	\$74.63
Appropriation Previously unavailable										
(Sequestered)							\$5.10	\$9.54	\$7.30	\$6.80
Appropriation Currently										
unavailable (Sequestered)							-\$9.54	-\$7.30	-\$6.80	-\$9.73
Obligations incurred:										
Scholarships in Science, Technology, Engineering, and Mathematics	92.40	61.22	75.96	77.67	72.57	83.98	92.18	109.34	140.54	84.38
Private-Public Partnership in K-12 ¹	28.72	27.86	20.85	18.62	21.59	31.51	37.23	29.83	44.35	35.11
Total Obligations	\$121.12	\$89.08	\$96.81	\$96.29	\$94.16	\$115.49	\$129.41	\$139.17	\$184.89	\$119.49
Unallocated Recoveries			2.20	3.12	0.96	3.55	-	4.95	1.60	3.58
Unobligated Balance										
end of year	\$46.68	\$50.41	\$49.24	\$63.09	\$96.72	\$108.31	\$111.39	\$122.41	\$72.03	\$96.86

¹P.L. 108-447 directs that 10 percent of the H-1B Petitioner funds go toward K-12 activities involving private-public partnerships in a range of areas such as materials development, student externships, math and science teacher professional development, etc.

Explanation of Carryover

Within the H-1B no-year account, \$96.86 million was carried over into FY 2018.

Innovation Technology Experiences for Students (ITEST)

- Amount: \$21.84 million
- Reason: Since NSF receives the largest payments of H-1B visa fees in August and September, there was insufficient time to obligate the receipts on awards before the end of the fiscal year.
- Anticipated Obligation: FY 2018 Quarter 4

Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM)

- Amount: \$75.02 million
- Reason: Since NSF receives the largest payments of H-1B visa fees in August and September, there was insufficient time to obligate the receipts on awards before the end of the fiscal year.
- Anticipated Obligation: FY 2018 Quarter 4