

**DIRECTORATE FOR EDUCATION AND
HUMAN RESOURCES (EHR)**

**\$760,550,000
-\$123,550,000 / -14.0%**

EHR Funding
(Dollars in Millions)

	FY 2016 Actual	FY 2017 (TBD)	FY 2018 Request	Change Over FY 2016 Actual	
				Amount	Percent
Division of Research on Learning in Formal and Informal Settings (DRL)	\$224.32	-	\$199.57	-\$24.75	-11.0%
Division of Graduate Education (DGE)	278.19	-	221.29	-56.90	-20.5%
Division of Human Resource Development (HRD)	149.31	-	135.30	-14.01	-9.4%
Division of Undergraduate Education (DUE)	232.29	-	204.39	-27.90	-12.0%
Total, EHR	\$884.10	-	\$760.55	-\$123.55	-14.0%

About EHR

The mission of the Directorate for Education and Human Resources (EHR) is to provide the research foundation to develop a diverse, science, technology, engineering, and mathematics (STEM)-literate public and 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. While the EHR mission remains constant, the context changes in which this mission is enacted. Each decade brings new challenges and opportunities.

The federal investment in STEM education, and within it the focused investment in STEM education research based at NSF, must anticipate and respond to changes in population demographics and diversity; economic conditions; the nature and practices of science and engineering; and the data- and cyber-infrastructure that is transforming society, security, and the nature of research.

The progress of science and engineering depends on the education of discoverers —those who will be the 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, STEM-related aspects of their work, 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.

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, ~~\$880,000,000~~, \$760,550,000, to remain available until September 30, 2017-2019.

(Note – A full-year 2017 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Further Continuing

Appropriations Act, 2017 (P.L. 114-254). The amounts included for 2017 reflect the annualized level provided by the continuing resolution.)

**Education and Human Resources
FY 2018 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 2016 Appropriation	\$880.00	\$2.63	-\$5.37	\$7.87	-\$1.03	\$884.10
FY 2017 Annualized CR	878.33	5.37				883.70
FY 2018 Total Request	760.55					760.55
\$ Change from FY 2017 Annualized CR						-\$123.15
% Change from FY 2017 Annualized CR						-13.9%

Explanation of Carryover

Within the **Education and Human Resources (EHR)** account, \$5.37 million was carried over into FY 2017.

Excellence Awards in Science and Engineering (EASE)

- Amount: \$2.93 million
- Reason: Delays in the selection of a contractor to assist with the administration of the Presidential Awards for Excellence in Mathematics and Science Teaching program, which is managed by EHR on behalf of OSTP.
- Obligated: FY 2017 Quarter 2

Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES)

- Amount: \$720,192
- Reason: Delays in obligation is due to the pre-award process for multiple new awardees.
- Obligated: FY 2017 Quarter 1

Robert Noyce Scholarship Program

- Amount: 1.62 million
- Reason: Robert Noyce program funding was carried over into FY 2017 for awards that were not ready for obligation.
- Anticipated Obligation: FY 2017 Quarter 4

The remaining \$97,719 are residual funds from various EHR program activities.

2018 EHR Summary

EHR's investment in FY 2018 employs three themes, or core research areas, to respond to changing population demographics and diversity, changing economic conditions, changes in the nature and practices of science and engineering, and changes in the data and cyberinfrastructure that is transforming society and the nature of research. These three themes guide the design of solicitations and program activities; EHR's investments are also coordinated within these themes.¹

As part of **broadening participation and institutional capacity**, EHR will serve as a central resource for the following:

- Co-leading, with the Directorate for Engineering (ENG), the Directorate for Geosciences (GEO), and the Office of Integrative Activities (OIA), the implementation of NSF's investment in Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES). EHR will help identify promising strategic goals and objectives that are pivotal for improving the participation of traditionally underrepresented groups, promote implementation research to support scaling of effective models, and involve all EHR broadening participation programs as NSF INCLUDES affiliates.
- An increased focus on STEM education for Native youths primarily through the Tribal Colleges and Universities Program (TCUP).
- Co-leading, with the Directorate for Computer and Information Science and Engineering (CISE), the agency priority goal Public Participation in STEM Research, bringing to bear a growing research base about how engagement of non-experts in scientific research is valuable both for developing interest and learning in science and engineering and increasing scientific output.

As part of **learning and learning environments**, EHR will promote the following:

- Research on the science of learning as translated into educational environments for STEM.
- Studies about specific learning issues in the STEM disciplines.
- The development and study of models for improving STEM learning environments and their implementation.
- Research to further the learning of crosscutting and interdisciplinary topics, such as data science and the science of science communication.
- Improvement of undergraduate learning opportunities to attract and retain STEM majors, via such emphases as research courses and technological innovations.

As part of **STEM professional workforce development**, EHR will place particular emphasis on specialized professional development and preparation for the following:

- The STEM teachers of tomorrow, through the Robert Noyce Teacher Scholarship Program (Noyce).
- Future cybersecurity experts through the CyberCorps[®]: Scholarship for Service (SfS) program.
- NSF involvement in the training component of the National Strategic Computing Initiative.
- Innovation in STEM graduate education in a variety of disciplines through the NSF Research Traineeship (NRT) program's Innovation in Graduate Education track.

EHR's core education research investment guides strategic and impactful STEM education improvement. In addition, EHR will continue to support the development and study of evidence-based and evidence-generating innovations and models for improving STEM learning. Investment in EHR core research (ECR) is key to improving and solving enduring challenges in STEM education in the three thematic areas discussed above that guide EHR's work. Findings are accumulating to inform investment, policy, and

¹ NSF Federal Advisory Committee for Education and Human Resources. (2014). *Strategic re-envisioning for the Education and Human Resources Directorate*. Arlington, VA: National Science Foundation. Retrieved from www.nsf.gov/ehr/Pubs/AC_ReEnvisioning_Report_Sept_2014_01.pdf

practice in several areas of STEM education. For instance, there is a solid evidence base to support shifts in undergraduate STEM teaching to approaches that emphasize active learning.² Education research about mentoring and providing research experiences to undergraduate and graduate students shows the value of focusing explicitly on students' professional development.³ Research indicates that a critical factor in improving teachers' effectiveness is subject-specific professional development.⁴ There is evidence that engagement in authentic STEM research experiences both inside and outside of school can promote interest and persistence in STEM, and there is evidence that course-based research can decrease inequities by expanding research opportunities to more learners from underrepresented groups.^{5,6} Student pathways to STEM degree completion are complex; improved metrics, indicators, and data collection systems can help institutions better understand their populations of learners and pathways, including curricular and co-curricular components, that support success in obtaining a STEM degree.⁷

The role of NSF, through EHR, within the federal government in supporting such research on STEM education is unique. EHR programs fund crucial foundational, design and development, and implementation research that is 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 investments NSF-wide in undergraduate and graduate STEM education. That support occurs 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.

Overall, there are no significant shifts in EHR's priorities between FY 2016 and FY 2018. Rather, EHR will intensify its engagement in foundational research, broadening participation, and advancing science and engineering through strategic collaborations across the NSF disciplines.

EHR will participate in the cross-Foundation priorities NSF INCLUDES, Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS), and Understanding the Brain (UtB). For INFEWS and UtB, EHR's emphasis is on innovation in the development of a diverse, next-generation workforce with the skills and competencies needed in these emerging areas through the NRT and Centers for Research Excellence in Science and Technology (CREST) programs. STEM and education communities funded in EHR programs will be encouraged to engage in the NSF INCLUDES National Network, and EHR-based capacity for measurement and indicators in broadening participation will be engaged in the development of the NSF INCLUDES Backbone Organization.

² Freeman, S. et al. (2014). Active learning increases student performance in science. *Proceedings of the National Academy of Sciences*, 111, 8410-8415.

³ Tsui, L. (2007). Effective strategies to increase diversity in STEM fields: A review of the research literature. *The Journal of Negro Education*, 76(4), 555-581.

⁴ Penuel, W. R., Fishman, B. J., Yamaguchi, R., & Gallagher, L. P. (2007). What makes professional development effective? Strategies that foster curriculum implementation. *American Educational Research Journal*, 44(4), 921-958; and

Garet, M. S., Porter, A., Desimone, L., Birman, B., & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38(4), 915-945.

⁵ Locks, A. M., & Gregerman, S. R. (2008). Undergraduate research as an institutional retention strategy: The University of Michigan model. In R. Taraban & R.L. Blanton (Eds.), *Creating effective undergraduate research programs in science: The transformation from student to scientist* (pp. 11-32). New York: Teachers College Press; and Laursen, S. et al. (2010). *Undergraduate research in the sciences: Engaging students in real science*. San Francisco, CA: Jossey-Bass.

⁶ National Research Council (2015). *Integrating discovery-based research into the undergraduate curriculum*. Washington, DC: National Academies Press.

⁷ National Research Council (2016). *Barriers and opportunities for 2-year and 4-year STEM degrees: Systemic change to support students' diverse pathways*. Washington, DC: National Academies Press; and Locks & Gregerman (2008).

EHR’s FY 2018 Budget Request reflects a continuing strong commitment to deepening and strengthening the synergies within EHR and between EHR and the other directorates. Recognizing the unique commitment of NSF in the integration of education and the sciences, EHR’s funding prioritizes strategic collaborations that address discipline-specific needs in the sciences and engineering and that utilize the significant experience and expertise of the STEM education community to inform and improve the impact of strategic investments. This is reflected in EHR’s commitment to the NRT program to align with NSF-wide scientific priorities so that the field can be challenged to devise truly cutting-edge innovations in preparing graduate students to be researchers in these evolving areas. It is also evident in our continued leadership in the Improving Undergraduate STEM Education (IUSE) activity, SfS, and discipline-specific partnerships.

EHR staff continue to provide cross-agency leadership to the Federal Coordination in STEM Education Task Force (FC-STEM) and the associated Interagency Working Groups (IWG). In particular, EHR will provide staff support for the STEM Education Advisory Panel created by The American Innovation and Competitiveness Act (P.L. 114-329).

Major Investments

EHR Major Investments

(Dollars in Millions)

Area of Investment	FY 2016 Actual	FY 2017 (TBD)	FY 2018 Request	Change Over FY 2016 Actual	
				Amount	Percent
GRFP	\$166.38	-	\$123.27	-\$43.11	-25.9%
NSF INCLUDES	2.28	-	3.00	0.72	31.9%
INFEWS	8.81	-	4.00	-4.81	-54.6%
Improving Undergraduate STEM Education (IUSE)	87.00	-	87.00	-	-
Traineeship (NRT) ¹	31.02	-	33.05	2.03	6.5%
SaTC	49.98	-	40.00	-9.98	-20.0%
Understanding the Brain	11.00	-	9.00	-2.00	-18.2%
<i>BRAIN Initiative</i>	2.00	-	2.00	-	-

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

¹ Outyear commitments for Integrative Graduate Education and Research Traineeship (IGERT) are included in the NRT line and were \$10,000 in FY 2016. There is no IGERT funding beyond FY 2016.

All funding decreases/increases represent changes over the FY 2016 Actual.

- Graduate Research Fellowship Program (GRFP) (-\$43.11 million to a total of \$123.27 million): An equal investment is provided through the Integrative Activities budget for a total GRFP investment of \$246.54 million. For more information, see the Major Investments in STEM Graduate Education narrative within the NSF-Wide Investments chapter.
- NSF INCLUDES (+\$720,000 to a total of \$3.0 million): The Division of Human Resource Management (HRD) will support NSF INCLUDES Alliances. For more information, see the NSF INCLUDES narrative within the NSF-Wide Investments chapter.
- Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS) (-\$4.81 million to a total of \$3.0 million): This investment will support emphasis on the food-energy-water nexus research area

through NRT. For more information, see the INFEWS narrative within the NSF-Wide Investments chapter.

- Improving Undergraduate STEM Learning (IUSE) (\$87.0 million, equal to FY 2016 Actual): EHR will lead the NSF-wide IUSE activity. For more information, see the IUSE narrative within the NSF-Wide Investments chapter. In FY 2018, \$15.0 million is included for IUSE: Hispanic Serving Institutions (IUSE: HSI), with funding provided through the Division of Undergraduate Education (DUE) and HRD. The primary goals of the IUSE: HSI activity are to promote research on engaged student learning at HSIs, to incentivize institutional and community transformation, and to promote fundamental research about what it takes to diversify and increase participation in STEM effectively, including research that improves our understanding of how to build institutional capacity at HSIs. These activities will address the Nation's need to make the STEM workforce more inclusive.
- NSF Research Traineeship (NRT) (+\$2.02 million to a total of \$33.05 million): The investment for FY 2018 NRT activities is \$33.05 million, of which \$4.0 million is dedicated to supporting Innovation in Graduate Education (IGE) for model design, innovation, and research in graduate student training and professional development. For more information, see the Major Investments in STEM Graduate Education narrative within the NSF-Wide Investments chapter.
- Secure and Trustworthy Cyberspace (SaTC) (-\$9.98 million to a total of \$40.0 million): Through the CyberCorps®: Scholarship for Service (Sfs) program, EHR will support SaTC activities.
- Understanding the Brain (UtB) (-\$2.0 million to a total of \$9.0 million): In FY 2018, through the NRT, EHR core research (ECR), IUSE, and Discovery Research PreK-12 (DRK-12) programs, EHR will invest in cognitive and learning sciences research efforts to better understand brain function during learning and problem solving in specific domains of STEM education and to translate and apply findings from neuroscience and cognition for the improvement of education. This investment includes \$2.0 million for the brain research through the Advancing Innovation and Neurotechnologies (BRAIN) Initiative.

Summary and Funding Profile

EHR supports investment in core research in education and STEM learning as well as STEM education development and training. In FY 2018, the number of research grant proposals is estimated at 3,300. EHR expects to award approximately 475 research grants with an average annualized award size and duration of \$332,900 and 2.9 years, respectively.

EHR Funding Profile

	FY 2016 Actual Estimate	FY 2017 (TBD)	FY 2018 Request
Statistics for Competitive Awards:			
Number of Proposals	4,416	-	4,500
Number of New Awards	908	-	810
Funding Rate	21%	-	18%
Statistics for Research Grants:			
Number of Research Grant Proposals	3,267	-	3,300
Number of Research Grants	531	-	475
Funding Rate	16%	-	14%
Median Annualized Award Size	\$199,801	-	\$199,800
Average Annualized Award Size	\$332,900	-	\$332,900
Average Award Duration, in years	2.9	-	2.9

Program Monitoring and Evaluation

Workshops and Reports:

- EHR continues its strong emphasis on evidence-based decision making, through projects, programs, and investment portfolios that are evidence-based, evidence building, and evidence improving. Using the joint NSF and Institute of Education Sciences (IES) report, *Common Guidelines for Education Research and Development*, released in FY 2013, EHR will ensure that promising practices, key findings, and accumulated knowledge in evaluation are used and adapted for use internally and disseminated to the larger evaluation community. Plans are underway for updating that report in late FY 2017.
- The National Research Council (NRC) report *Monitoring Progress Toward Successful K-12 STEM Education* (2013) laid the groundwork for a significant effort launched in FY 2014 to develop indicators for tracking progress in preK-12 STEM education, an essential component in developing evidence-based programs. EHR and the National Center for Science and Engineering Statistics, in collaboration with the National Center for Education Statistics (NCES) within IES, are coordinating efforts to adapt and implement data collection on these indicators within other national efforts.

Committees of Visitors (COV):

- In October 2016, a COV was held for the EHR Core Research (ECR) program, which spans all four divisions in the directorate, and another COV reviewed the following programs managed by DUE: Transforming Undergraduate Education in STEM (DUE: TUES), STEM Talent Expansion Program (STEP), Widening Implementation and Demonstration of Evidence-Based Reforms (WIDER), and Improving Undergraduate STEM Education (IUSE: EHR).
- In November 2016, a division-wide COV reviewed all programs managed by HRD: Advancement of Women in Academic Science and Engineering Careers (HRD: ADVANCE), Alliances for Graduate Education and the Professoriate (AGEP), Centers for 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.
- An evaluation of the Robert Noyce Teacher Scholarship Program, conducted by Abt Associates, was completed in FY 2017.
- The Division of Graduate Education (DGE) plans to hold a division-wide COV in FY 2018 to review SfS, NRT, and GRFP.

Directorate for Education and Human Resources

- DUE plans to hold a division-wide COV in FY 2018 to review the Advanced Technological Education (ATE) program, IUSE: EHR, the NSF Scholarships in STEM (S-STEM) program, and Noyce.

Evaluation activities tentatively scheduled for FY 2017 and FY 2018:

- ADVANCE plans to initiate a program evaluation.
- IUSE plans to initiate an evaluation.
- The Graduate Research Internship Program (GRIP) plans to initiate a program evaluation.

EHR-based infrastructure and processes will be developed in collaboration with the NSF Evaluation and Assessment Capability, as appropriate. EHR experts in evaluation will 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.

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.

Number of People Involved in EHR Activities

	FY 2016 Actual Estimate	FY 2017 (TBD)	FY 2018 Estimate
Senior Researchers	6,400	-	5,500
Other Professionals	2,300	-	2,000
Postdoctoral Associates	300	-	300
Graduate Students	10,851	-	9,400
Undergraduate Students	16,000	-	13,800
K-12 Teachers	36,200	-	31,300
K-12 Students	81,900	-	70,800
Total Number of People	153,951	-	133,100

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

\$199,570,000
-\$24,750,000 / -11.0%

DRL Funding
(Dollars in Millions)

	FY 2016 Actual	FY 2017 (TBD)	FY 2018 Request	Change Over FY 2016 Actual	
				Amount	Percent
Total, DRL	\$224.32	-	\$199.57	-\$24.75	-11.0%
Learning and Learning Environments	25.65	-	34.33	\$8.68	33.9%
EHR Core Research (ECR): STEM Learning	25.65	-	34.33	8.68	33.9%
Broadening Participation and Institutional Capacity	146.80	-	145.24	-\$1.56	-1.1%
Advancing Informal STEM Learning (AISL)	62.50	-	62.50	-	-
Discovery Research PreK-12 (DRK-12)	84.30	-	82.74	-1.56	-1.8%
STEM Professional Workforce	51.87	-	20.00	-\$31.87	-61.4%
Science, Technology, Engineering, Mathematics + Computing (STEM + C) Partnerships	51.87	-	20.00	-31.87	-61.4%

The Division of Research on Learning in Formal and Informal Settings (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 also includes the design, implementation, and study of learning environments, models, and technologies intended to engage and enable STEM learning for all students, particularly those who have been underrepresented in STEM, through both formal and informal STEM activities both within formal education systems and beyond. DRL also provides direction for the EHR portfolio in techniques for measurement and assessment of learning outcomes.

The FY 2018 Budget Request for DRL is \$199.57 million which will allow DRL to:

- Invest across its 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 methodologies to 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 FY 2018, through the STEM + C Partnerships (STEM + C) program, DRL will lead EHR’s involvement with the CISE directorate in Computer Science for All: Researcher Practitioner Partnerships (CSforAll: RPP), by making \$10.0 million available to advance the effective teaching and learning of computer science in K-12 education. An equal investment is provided through CISE’s budget for a total CSforAll: RPP investment of \$20.0 million. DRL will also contribute \$5.0 million to NSF’s UtB initiative; this includes \$2.0 million for the Brain Research through Advancing Innovation and Neurotechnologies (BRAIN) Initiative to support research on the neural and cognitive basis of STEM learning.

FY 2018 Summary

All funding decreases/increases represent changes over the FY 2016 Actual.

Learning and Learning Environments

- ECR: STEM Learning (+\$8.68 million to a total of \$34.33 million): This program will continue to deepen the portfolio of foundational STEM education research on learning, learning environments, broadening participation, and the STEM professional workforce. An area of emphasis within the learning and learning environments theme for FY 2018 will be early childhood STEM learning, which will be highlighted in ECR along with an emphasis on advanced methodologies to support foundational research on STEM learning. ECR funding will enable strategic and coordinated research investments in areas of high importance for improving STEM learning across all of the Nation's demographics, including new knowledge about how to successfully develop talent in groups that have traditionally been underrepresented in STEM. DRL will support data science-enabled research on STEM learning, and foundational research in relation to cyberlearning (including technology-based learning in the workplace) along with computational thinking.

Broadening Participation and Institutional Capacity in STEM

- Broadening participation investments in FY 2018 will continue to focus on understanding changing demographics and building talent so that diversity is an asset for science. DRL's funding for AISL is \$62.50 million (level with FY 2016 Actual). These resources will support design, adaptation, implementation, and research on innovative modes of learning in the informal environment, including emphases on public participation in scientific research, making, cyberlearning, and coding. AISL will continue to encourage projects that utilize informal learning environments in novel ways to engage students from groups traditionally underrepresented in STEM and will continue to support collaborative partnerships across institutions that support informal science learning.
- FY 2018 DRK-12 investments total \$82.74 million (-\$1.56 million). These funds are aimed at improving STEM achievement for all preK-12 students, including innovative areas such as computer science and engineering. Investments will focus on enabling success for preK-12 students in all groups and across diverse educational settings including technology-supported learning environments. Of particular interest is enhancing disciplinary-specific and interdisciplinary teaching and learning in all STEM disciplines via evidence-based instructional resources and tools. Teacher development and education initiatives focus on preparing the Nation's diverse learners for future needs in STEM innovation. DRK-12 is also focused on design and implementation research on policy and practice issues that support STEM learning and learning environments for a wide range of students.

STEM Professional Workforce

- The STEM + C Partnerships program advances research on and development of innovative courses, curriculum, course materials, pedagogies, instructional strategies, and models that integrate computing into one or more other STEM disciplines (-\$31.87 million to \$20.0 million). Of this budget, \$10.0 million will be used to support CSforAll: RPP, in collaboration with CISE. The remaining budget will be targeted at continuing obligations within STEM + C as well as collaborative funding with other DRL programs on the topic of integrating computing with other STEM disciplines. In FY 2018, STEM + C will not run a new competition, but the program will use the year to evaluate its portfolio as well as relations to other EHR programs, to inform plans for FY 2019.

DIVISION OF GRADUATE EDUCATION (DGE)

\$221,290,000
-\$56,900,000 / -20.5%

DGE Funding
(Dollars in Millions)

	FY 2016 Actual	FY 2017 (TBD)	FY 2018 Request	Change Over FY 2016 Actual	
				Amount	Percent
Total, DGE	\$278.19	-	\$221.29	-\$56.90	-20.5%
Learning and Learning Environments	14.57	-	9.00	-5.57	-38.2%
Project and Program Evaluation (PPE)	14.57	-	9.00	-5.57	-38.2%
STEM Professional Workforce	263.40	-	212.29	-51.11	-19.4%
EHR Core Research (ECR): STEM Professional	16.00	-	15.97	-0.03	-0.2%
CyberCorps®: Scholarship for Service (SfS)	49.98	-	40.00	-9.98	-20.0%
Graduate Research Fellowship Program (GRFP)	166.38	-	123.27	-43.11	-25.9%
NSF Research Traineeship (NRT) ¹	31.03	-	33.05	2.02	6.5%

¹ Outyear commitments for Integrative Graduate Education and Research Traineeship (IGERT) are included in the NRT line and were \$10,000 in FY 2016. There is no IGERT funding beyond FY 2016.

The Division of Graduate Education (DGE) provides leaders 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.

The FY 2018 Budget Request for DGE is \$221.29 million. This budget will allow DGE to emphasize research on the development of the STEM workforce through ECR. SfS will continue its 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. The SfS program will also support research and development in program, curriculum, and assessment related to cybersecurity education needs across all levels of higher education. Finally, DGE will continue its efforts to engage community colleges in the preparation of cybersecurity professionals.

In FY 2018 DGE will continue to promote interdisciplinary research traineeships for graduate students in high priority areas of STEM through the NRT program. DGE will also continue to promote innovation in graduate education through the Innovations in Graduate Education (IGE) track of the NRT program, along with new research and professional development opportunities for graduate students supported through other NSF mechanisms. DGE will sustain its emphasis on broadening participation in the STEM workforce through outreach to Hispanic-serving institutions, historically black colleges and universities, and tribal colleges and universities.

DGE will support Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS) at a level of \$3.0 million through the NRT program. With the Directorate for Biological Sciences, DGE has administrative and intellectual responsibility for the implementation of the *NSF Strategic Framework for Investments in Graduate Education: FY 2016-FY 2020*.⁸ DGE also leads the EHR evaluation portfolio (particularly in the area of human capital), and is co-lead with the National Institutes of Health in the FC-STEM IWG on Graduate Education.

⁸ National Science Foundation. (2016). *The National Science Foundation strategic framework for investments in graduate education: FY 2016-FY 2020*. Arlington, VA: NSF. Retrieved from www.nsf.gov/pubs/2016/nsf16074/nsf16074.pdf

FY 2018 Summary

All funding decreases/increases represent changes over the FY 2016 Actual.

Learning and Learning Environments

- Administrative oversight for EHR's activity in evaluation, monitoring, and related research activities will reside in DGE, and staff will collaborate closely with the Evaluation and Assessment Capability in OIA. PPE efforts (-\$5.57 million to a total of \$9.0 million) will include launching long-term studies to examine and compare the impact of various NSF investment approaches in graduate students and funding the development of instruments to assess metrics identified in the NRC report, *Monitoring Progress Toward Successful K-12 STEM Education* (2013).

STEM Professional Workforce

- ECR: STEM Professional Workforce Preparation investments will expand the knowledge base to improve STEM professional workforce development at all educational levels through development of models, research, and evaluation, and they will allow translation of the results of the research for adoption/adaptation in workforce and education programs. DGE's FY 2018 funding for its ECR program is \$15.97 million (-\$30,000).
- SfS (-\$9.98 million to a total of \$40.0 million): SfS funding will improve the capacity of institutions to provide the latest curricular and assessment approaches and experiences available to ensure that the students are well prepared with cybersecurity skills and knowledge, and this funding will allow institutions to conduct research to build understanding of the most effective preparation for a variety of cybersecurity professions. It also will enable awards to a broader spectrum of institutions to make additional scholarships. Due to greater capacity, increased attention will be directed to community colleges, continuing an effort launched in FY 2015.
- EHR's portion of GRFP (-\$43.11 million to a total of \$123.27 million): The program will support 1,000 new fellowships with a cost of education allowance of \$12,000 and a stipend of \$34,000. For more information, see the Major Investments in STEM Graduate Education narrative within the NSF-Wide Investments chapter.
- EHR's NRT investment (+\$2.02 to a total of \$33.05 million) will continue to support projects in the NSF-wide priorities INFEWS and UtB. Of the NRT budget, \$4.0 million is dedicated to supporting the IGE track. Through IGE, NRT will challenge the field to devise, implement, and assess cutting-edge innovations in preparing graduate students to be researchers in the evolving areas supported by INFEWS and UtB and will seek bold new STEM graduate education pilots and models in order to transform current practices in graduate education.

DIVISION OF HUMAN RESOURCE DEVELOPMENT (HRD)

\$135,300,000
-\$14,010,000 / -9.4%

HRD Funding
(Dollars in Millions)

	FY 2016 Actual	FY 2017 (TBD)	FY 2018 Request	Change Over FY 2016 Actual	
				Amount	Percent
Total, HRD	\$149.31	-	\$135.30	-\$14.01	-9.4%
Learning and Learning Environments	58.49	-	56.53	-1.96	-3.4%
ADVANCE	1.48	-	1.53	0.05	3.4%
Alliances for Graduate Education and the Professoriate (AGEP)	8.00	-	7.00	-1.00	-12.5%
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	-	13.00	-1.01	-7.2%
Broadening Participation & Institutional Capacity	61.19	-	50.95	-10.24	-16.7%
EHR Core Research (ECR): Broadening Participation and Institutional Capacity in STEM	12.90	-	7.28	-5.62	-43.6%
NSF INCLUDES	2.28	-	3.00	0.72	31.9%
Louis Stokes Alliances for Minority Participation (LSAMP)	46.01	-	40.67	-5.34	-11.6%
STEM Professional Workforce	29.63	-	27.82	-1.81	-6.1%
Centers for Research Excellence in Science and Technology (CREST)	24.04	-	24.00	-0.04	-0.2%
Excellence Awards in Science and Engineering (EASE)	5.59	-	3.82	-1.77	-31.7%

The Division of Human Resource Development (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 both of these goals.

The FY 2018 Budget Request for HRD is \$135.30 million. EHR will continue its role in NSF-wide activities to strengthen inclusion and broadening participation for all groups in STEM. EHR is a co-lead organization in the implementation of NSF INCLUDES, with primary expertise coming from HRD. As NSF INCLUDES enters its third year, HRD programs will continue to build strong linkages with it to create seamless connections with the existing broadening participation portfolio.

The HBCU-UP program will collaborate with the R&RA directorates to encourage HBCU faculty to submit proposals to other directorates and enhance research capacity at HBCUs. The CREST program will encourage institutional collaborations with other federal agencies, state governments, national laboratories, private sector research laboratories, and K-12 entities to advance knowledge and education on research that is of significance to the Nation.

HRD has administrative and intellectual responsibility for EASE, in partnership with the Office of Science and Technology Policy. EASE will continue to support professional development for K-12 teachers and STEM educators and mentors, as well as the identification and recognition of educators who have particular impact on broadening participation.

FY 2018 Summary

All funding decreases/increases represent changes over the FY 2016 Actual.

Learning and Learning Environments

- In FY 2018, the ADVANCE program's cumulative budget, consisting of EHR funds and other directorate contributions, reduced 67 percent (or -\$9.96 million) to \$4.90 million. HRD's funding for ADVANCE is \$1.53 million (+\$50,000).
- AGEP (-\$1.0 million to a total of \$7.0 million): AGEP will support innovative and sustainable ways to promote inclusion in the STEM academic workforce, and will continue to implement new strategies to work with the NRT program and GRFP focusing on transitions from graduate to postdoctoral training to increase STEM career opportunities.
- HRD's funding for HBCU-UP is \$35.0 million (-\$10,000). This funding will invest in broadening participation research centers, which will enable the HBCU community to develop a long-term plan for the integration of research and education in the science of broadening participation, and foster knowledge transfer about research and education advances.
- TCUP will support the design, implementation, and assessment of comprehensive institutional improvements in STEM instruction and research capacity (-\$1.01 million to a total of \$13.0 million).

Broadening Participation and Institutional Capacity in STEM

- In FY 2018, HRD will continue to provide strategic direction and guidance for the broadening participation and institutional capacity component of ECR (-\$5.62 million to a total of \$7.28 million). Minority serving institutions will be encouraged to explore research topics and workshops that support capacity building at these institutions, with a focus on developing faculty to carry out STEM education research. In FY 2018, ECR funding will also support the IUSE: HSI activity.
- HRD's funding for NSF INCLUDES will support the development of the NSF INCLUDES Alliances, the Backbone Organization, and additional Design and Development Launch Pilots (+\$720,000 to a total of \$3.0 million). HRD will play a key role in the development of metrics and approaches for the assessment of NSF INCLUDES and other investments in broadening participation.
- LSAMP (-\$5.34 million to a total of \$40.67 million). This funding will support an increased focus on STEM research and evaluation to expand knowledge about effective strategies for student recruitment, retention, and persistence in STEM programs. Decreased support to LSAMP will reduce funding for Pre-Alliance Planning grants and Bridge to the Baccalaureate Alliances.

STEM Professional Workforce

- CREST will continue to grow the new Postdoctoral Research Fellowship track introduced in FY 2016 which fosters increased collaborations across the centers and builds research capacity at minority serving institutions. HRD's funding for CREST is \$24.0 million (-\$40,000).
- EASE (-\$1.77 million to a total of \$3.82 million): Collaborative efforts among the EASE, Noyce, and DRK-12 programs support the professional development of preK-12 teachers, by piloting models for teacher leadership.

DIVISION OF UNDERGRADUATE EDUCATION (DUE)**\$204,390,000**
-\$27,900,000 / -12.0%**DUE Funding**
(Dollars in Millions)

	FY 2016 Actual	FY 2017 (TBD)	FY 2018 Request	Change Over FY 2016 Actual	
				Amount	Percent
Total, DUE	\$232.29	-	\$204.39	-\$27.90	-12.0%
Learning and Learning Environments	100.02	-	91.50	-8.52	-8.5%
EHR Core Research (ECR): STEM Learning	13.02	-	4.50	-8.52	-65.5%
Improving Undergraduate STEM Education (IUSE)	87.00	-	87.00	-	-
STEM Professional Workforce	132.08	-	112.89	-19.19	-14.5%
Advanced Technological Education	66.04	-	59.00	-7.04	-10.7%
NSF Innovation Corps (I-Corps™)	1.55	-	-	-1.55	-100.0%
Robert Noyce Teacher Scholarship Program	64.50	-	53.89	-10.61	-16.4%

The Division of Undergraduate Education (DUE) supports the design, development, and study of innovative STEM learning environments that integrate cutting-edge science and education findings to improve learning for all undergraduates. These investments promote changes in teaching practices across the full range of U.S. higher education, from community colleges, through four-year colleges and large comprehensive public institutions, to research universities, including flagship state-supported systems. In turn, these changes serve to open multiple career pathways for undergraduates. For example, innovative efforts at community colleges enable students to gain expertise in advanced technologies such as additive manufacturing, biotechnology, precision agriculture, nano-optics, or cybersecurity that lead directly to employment in those sectors. At other institutions STEM majors can pursue alternative teaching certification to be able to enter the K-12 teaching workforce in high-need school districts. Overall, improved student learning outcomes for STEM students lead to greater retention and degree attainment, and better preparation to meet STEM-savvy workforce needs and to replenish the pool of future STEM researchers.

The FY 2018 Budget Request for DUE is \$204.39 million. This budget will allow DUE programs to provide direction for the nationwide movement to transform undergraduate STEM education through the creation and study of innovative environments for undergraduate STEM interdisciplinary and disciplinary learning. DUE also continues to be the main source of support across federal agencies for discipline-based educational research,⁹ where disciplinary expertise and evidence from the learning sciences are infused into physical and virtual tools, technologies, and other learning experiences, and then iteratively improved through research and development to impact STEM learning at scale. DUE will focus on investments for improving mathematics learning and teaching, particularly in the first two years; improving data science learning; developing socio-emotional and twenty first century skills in conjunction with STEM learning; and developing the next generation of researchers who will study undergraduate STEM education.

To increase the population of diverse, innovative STEM and STEM-savvy workers, DUE also will focus on improving the preparation of future members of two important sectors of the professional workforce: K-12 teachers and highly skilled technicians in advanced technology industries. In FY 2018, 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. DUE funding for IUSE includes support for IUSE: HSI. Across DUE programs, research and

⁹ National Research Council. (2012). *Discipline-based education research: Understanding and improving learning in undergraduate science and education*, Washington, DC: National Academies Press.

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 will also be emphasized.

FY 2018 Summary

All funding decreases/increases represent changes over the FY 2016 Actual.

Learning and Learning Environments

- ECR: STEM Learning Environments (-\$8.52 million to a total of \$4.5 million): DUE has leadership for this ECR focus area. The funds will support foundational research and related development for the improvement of STEM learning environments, including cyberlearning, as well as the use of data science to understand and improve learning environments.
- DUE's funding for IUSE is \$87.0 million (level with FY 2016 Actual) to support scaling evidence-based practices; advancing the knowledge base for undergraduate research, including course-based research; and developing and identifying indicators, metrics, and assessments to measure readiness for and progress toward widespread use of evidence-based resources in undergraduate STEM instruction. DUE will seek to increase the STEM research and experiential learning opportunities available in NSF-funded large facilities, national laboratories, and centers through the S-STEM program in collaboration with the NSF Graduate Research Internship Program (GRIP) within GRFP. DUE will work with HRD to align the IUSE: EHR and S-STEM (an H-1B Visa funded program) programs with the LSAMP program to leverage the strengths of all three programs for enhancing persistence of students from low-income and underrepresented groups. The two divisions will focus on improving undergraduate learning at HSIs. This alignment will be informed by an HRD- and DUE-funded study by the National Academies on *Barriers and Opportunities for 2-year and 4-year STEM Degrees*.¹⁰
- For more information regarding IUSE and NSF's undergraduate framework, see the IUSE narrative in the NSF-Wide Investments chapter.

STEM Professional Workforce

- ATE (-\$7.04 million to a total of \$59.0 million) and Noyce (-\$10.61 million to a total of \$53.89 million). In FY 2018, ATE activities will continue to fund research and development on effective preparation of advanced technology technicians, while Noyce will continue investing in teacher preparation. In addition, both programs will continue to emphasize the preparation of a diverse STEM workforce and will incorporate a focus on inclusion, in partnership with the NSF INCLUDES initiative.

¹⁰ National Academies of Sciences, Engineering, and Medicine. (2016). *Barriers and opportunities for 2-year and 4-year STEM degrees: Systemic change to support diverse student pathways*. Committee on Barriers and Opportunities in Completing 2-Year and 4-Year STEM Degrees. S. Malcom and M. Feder, Eds. Board on Science Education, Division of Behavioral and Social Sciences and Education. Board on Higher Education and the Workforce, Policy and Global Affairs. Washington, DC: The National Academies Press. Retrieved from <https://www.nap.edu/catalog/21739/barriers-and-opportunities-for-2-year-and-4-year-stem-degrees>

H-1B NONIMMIGRANT PETITIONER FEES

\$100,000,000

In FY 2018, H-1B Nonimmigrant Petitioner Fees are projected to be \$100.0 million.

H-1B Nonimmigrant Petitioner Fees Funding

(Dollars in Millions)

	FY 2016 Actual	FY 2017 Estimate	FY 2018 Request	FY 2018 Request Change Over FY 2017 Estimate	
				Amount	Percent
H-1B Nonimmigrant Petitioner Fees Funding	\$184.89	\$100.00	\$100.00	-	-

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. At this time, 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 over 7,400 proposals from all types of colleges and universities and has made awards to 1,743 projects. In addition to scholarships, projects include a coherent ecosystem of student support activities featuring close involvement of faculty, student mentoring, academic support, curriculum development, and recognition of the students. Such activities are important in recruiting and retaining students in high-technology fields through graduation and into employment. In FY 2018, in addition to the long-standing scholarship support, all S-STEM projects will contribute to the knowledge base of scholarly research in education by carrying out research on interventions which affect associate or baccalaureate degree attainment for 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, it is important to systematically study the reasons for this success so that effective practices can be used at scale. Approximately 85-90 awards are anticipated in FY 2018, with an emphasis on increasing involvement of community colleges, especially Hispanic-serving institutions. S-STEM activities in FY 2018 will leverage efforts in the IUSE: EHR and LSAMP programs to enhance persistence of students. S-STEM will be a partner in the NSF INCLUDES initiative. S-STEM programming and research emphasis also will align with NRT to understand and enhance development of effective learning environments and pathways for scholarship and traineeship students on the continuum from two-year to four-year to master's to 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 4,961 proposals and funded 484 projects that allow students and teachers to work closely with scientists, engineers, and other STEM professionals on extended research projects ranging from biotechnology to environmental resource management to programming and problem-solving. 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 not successful in traditional school settings. In FY 2018, ITEST will be a partner in the NSF INCLUDES initiative and will make approximately 20 awards.

H-1B Financial Activities from FY 2007 - FY 2016

(Dollars in Millions)

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Receipts	\$107.36	\$104.43	\$88.66	\$91.22	\$106.11	\$128.99	\$120.94	\$132.49	\$143.00	\$138.79
Unobligated Balance start of year	\$98.19	\$63.37	\$50.83	\$52.62	\$50.15	\$60.93	\$99.31	\$104.76	\$108.35	\$116.02
Appropriation Previously unavailable (Sequestered)								\$5.10	\$9.54	\$7.30
Appropriation Currently unavailable (Sequestered)								-\$9.54	-\$7.30	-\$6.80
Obligations incurred:										
Scholarships in Science, Technology, Engineering, and Mathematics ¹	100.04	92.40	61.22	75.96	77.67	72.57	83.98	92.18	109.34	140.54
Private-Public Partnership in K-12 ¹	45.90	28.72	27.86	20.85	18.62	21.59	31.51	37.23	29.83	44.35
Total Obligations	\$145.94	\$121.12	\$89.08	\$96.81	\$96.29	\$94.16	\$115.49	\$129.41	\$139.17	\$184.89
Unallocated Recoveries			2.20	3.12	0.96	3.55	-	4.95	1.60	4.20
Unobligated Balance end of year	\$59.61	\$46.68	\$52.62	\$50.15	\$60.93	\$99.31	\$104.76	\$108.35	\$116.02	\$74.63

¹ P.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, and math and science teacher professional development.

Explanation of Carryover

Within the **H-1B** no-year account, \$74.63 million was carried over into FY 2017.

Innovation Technology Experiences for Students (ITEST)

- Amount: \$18.66 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 2017 Quarter 4

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

- Amount: \$55.97 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 2017 Quarter 4

