DIVISION OF MATHEMATICAL SCIENCES (DMS) $235,470,000
+$3,740,000 / 1.6%

DMS Funding
(Dollars in Millions)

	FY 2014 Actual	FY 2015 Estimate	FY 2016 Request	Change Over FY 2015 Estimate Amount	Percent
Total, DMS	**$224.97**	**$231.73**	**$235.47**	**$3.74**	**1.6%**
Research	**197.95**	**218.15**	**227.82**	**9.67**	**4.4%**
CAREER	12.31	9.51	10.03	0.52	5.5%
Centers Funding (total)	0.20	0.10	0.20	0.10	100.0%
Centers for Analysis & Synthesis	0.20	0.10	0.20	0.10	100.0%
Education	**27.02**	**13.58**	**7.65**	**-5.93**	**-43.7%**

Totals may not add due to rounding.

DMS plays a critical role in providing more than 50 percent of all U.S. federal support basic research at the frontiers of discovery in the mathematical sciences.

The influence of mathematical sciences on daily life is fundamental and pervasive; for example, every secure commercial transaction on the internet is an application of research in number theory and algebraic geometry. Modern communication, transportation, medicine, manufacturing, security, and finance all depend on developments in the mathematical sciences.

DMS investments catalyze research at the frontiers of fundamental, applied, and computational mathematics and statistics, and also enable discovery and innovation in other fields of science and engineering linked to key national priorities. In turn, advances in science and engineering inspire development of ever more sophisticated mathematical and statistical methodology, theory, and tools. DMS investments underpin these developments as well as the training of future researchers in the mathematical sciences.

In addition to supporting a vibrant research community through core research programs in mathematics and statistics, DMS supports national mathematical sciences research institutes that advance research, increase the impact of the mathematical sciences, respond to national needs, and expand the U.S. talent base engaged in mathematical and statistical research. DMS also continues to develop interdisciplinary activities that reflect national priorities. Successful multi-agency programs, such as joint activity in biosciences with the National Institute of General Medical Sciences, are continuing, and newer DMS activities, such as the Mathematical Sciences Innovation Incubator and the Computational and Data-Enabled Science and Engineering program, are attracting broad interest. The DMS Workforce Program offers funding opportunities that support efforts to increase the number of well-prepared students who pursue careers in the mathematical sciences and in other NSF-supported disciplines. These investments in mathematical sciences discovery, connections, and community are essential components of the innovation engine that drives the nation's economy in the 21st century.

In general, 48 percent of the DMS portfolio is available for new research grants and 52 percent is available for continuing grants.

FY 2016 Summary

All funding decreases/increases represent change over the FY 2015 Estimate.

Research

- CAREER (+$520,000 to a total of $10.03 million): Support for early-career researchers is a division priority. This increase allows DMS to support two to three additional CAREER awards.
- Optics and photonics (+$3.60 million to a total of $4.60 million): Divisional investment in this emphasis area reflects increased interest in this important area. DMS will lead MPS participation in this multidisciplinary NSF-wide activity to invest in fundamental research in optics and photonics, which are key enabling technologies in a multitude of application areas. DMS will coordinate MPS activities in optics and photonics in collaboration with other participating directorates. The activity will be highlighted through community workshops and the development of a program solicitation.
- BioMaPS (+$260,000 to a total of $3.26 million): DMS invests in innovative research at the intersection of the mathematical and physical sciences and the biological sciences in a comprehensive approach to acquire insight into and inspiration from the living world.
- Understanding the Brain (+$1.75 million to a total of $5.30 million): DMS support increases in this NSF goal to enable scientific understanding of the full complexity of the brain, in action and in context, through targeted, cross-disciplinary investments.
- Secure and Trustworthy Cyberspace (+$1.0 million to a total of $1.50 million): Funding reflects increased national need for fundamental cybersecurity research. This research investigates questions surrounding securing information networks against hostile intrusion and ensuring individual privacy in anonymized data sets.
- CEMMSS (+$1.73 million to a total of $6.10 million): Funding will accelerate fundamental discoveries in materials science by investing in new capabilities for mathematical modeling, computational simulation, numerical algorithms, and data analysis and management.
- SEES (-$2.50 million to zero): Decreased investment here is offset by DMS investment in new interdisciplinary research, including Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS) (+$1.70 million to $1.70 million total) and Risk and Resilience (+$500,000 to a total of $500,000). Research on fundamental scientific issues, such as understanding the dynamical processes that produce extreme events, will advance knowledge and help to create tools for increased resilience of societal infrastructure to natural and man-made hazards.
- Mathematical Sciences Research Institutes (level at $29.50 million): Eight domestic DMS-supported institutes will continue to catalyze frontier research through an array of scientific programs.

Education

- Decreased investment in the overall Education portfolio (-$5.93 million to a total of $7.65 million in FY 2016) reflects the mainstreaming into core programs of support for graduate students and postdoctoral researchers. Most of these decreases are achieved through the sunset of the Enhancing the Mathematical Sciences Workforce in the 21st Century program.
- The Education portfolio maintains a commitment to Research Experiences for Undergraduates (REU) program at $3.39 million.
- Mathematical Sciences Postdoctoral Research Fellowships (level at $4.10 million): DMS continues investments in a number of education and diversity activities through the program.