INTEGRATIVE ACTIVITIES (IA)

$336,250,000
+$61,210,000 / 22.3%

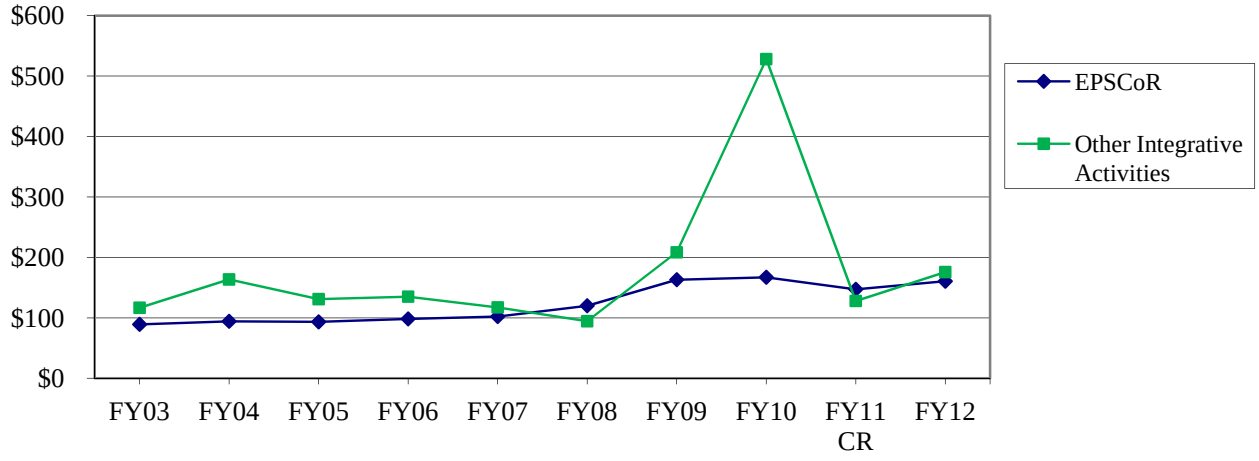
IA Funding
(Dollars in Millions)

	FY 2010 Omnibus Actual	FY 2010 ARRA Actual	FY 2010 Enacted/ Annualized FY 2011 CR	FY 2012 Request	Change Over FY 2010 Enacted Amount	Change Over FY 2010 Enacted Percent
Academic Research Infrastructure	-	$200.00	-	-	-	N/A
Communicating Science Broadly	4.00	-	4.00	4.00	-	-
EPSCoR	147.11	20.00	147.12	160.53	13.41	9.1%
Graduate Research Fellowships	17.48	-	17.48	63.53	46.05	263.4%
INSPIRE	-	-	-	12.35	12.35	N/A
Major Research Instrumentation	89.99	200.15	90.00	90.00	-	-
Science and Technology Centers	13.27	-	13.40	1.30	-12.10	-90.3%
Science and Technology Policy Institute	3.04	-	3.04	3.14	0.10	3.3%
STAR METRICS	-	-	-	1.40	1.40	N/A
Total, IA	**$274.89**	**$420.15**	**$275.04**	**$336.25**	**$61.21**	**22.3%**

Totals may not add due to rounding.

Integrative Activities (IA) supports emerging, cross-disciplinary, and potentially transformative research and education activities that span the traditional boundaries of other NSF directorates and offices. IA invests in a number of integrative research and education programs that foster the development of the next generation of scientific and engineering leaders, a diverse, technically trained STEM workforce, and a scientifically literate general public. IA is a source of federal funding for the acquisition and development of research instrumentation at U.S. academic institutions and for strengthening the research and educational infrastructure throughout the Nation.

IA Subactivity Funding
(Dollars in Millions)



FY 2012 Summary/Major Investments

- In today's technological culture, opportunities for learning abound in both community and personal settings. Communicating Science Broadly (CSB) creates products and processes through traditional and social media platforms that make learning and understanding science, technology, engineering, and mathematics part of everyday life. In FY 2012, CSB will focus on informing students and other young people of the value of science in their lives with the aim to increase the long term diversity among the Nation's future scientists, engineers, and researchers. The FY 2012 Request of $4.0 million is unchanged from the FY 2010 Enacted level.

- The Experimental Program to Stimulate Competitive Research (EPSCoR) assists the Foundation in its mandate to promote scientific progress nationwide. EPSCoR effects lasting improvements in the research capacity of institutions in participating states to prompt broader engagement at the frontiers of discovery and innovation in science and engineering. EPSCoR's FY 2012 Request of $160.53 million, an increase of $13.41 million over the FY 2010 Enacted budget, is focused on these strategic investment tools: Research Infrastructure Improvement (RII) awards, Co-Funding, and Outreach. RII is further differentiated into **RII Track-1** awards, which support development of physical, human, and cyber-based research infrastructure in EPSCoR jurisdictions; **RII Track-2** awards, which support cyberinfrastructure development in a consortium of EPSCoR jurisdictions, and **RII C2** awards, which support intercampus and intracampus cyber connectivity within EPSCoR jurisdictions.

- The Graduate Research Fellowships (GRF) program builds the critical human capital base required for future STEM investigation and innovation. Research and Related Activities (R&RA) investments in GRF will increase $46.05 million above the FY 2010 Enacted level to a total of $63.53 million. In FY 2012, total NSF investments in GRF will support an estimated total of 2,000 new graduate research fellows.

- In FY 2012, IA will invest $12.35 million in a new activity to catalyze interdisciplinary research (IDR). Integrated NSF Support Promoting Interdisciplinary Research and Education (INSPIRE) consists of a suite of activities that will foster and support interdisciplinary research, both in the form of funding potentially transformative research through a new INSPIRE awards program as well as identifying and lowering barriers to interdisciplinary research within NSF and in the research community — such as augmenting staff and reviewer training to convey the importance and value of IDR; ensuring that NSF's e-business systems and processes allow for the complexity of IDR; fostering the exchange of best practices; and undertaking outreach to the research community. Additionally, to facility the study of IDR outcomes, the program will establish an integrated evaluation system that supports longitudinal data collection of INSPIRE's impact on the advancement of science as well as on the career pathways of awardees over time.

- Advanced research instrumentation is essential for breakthrough discoveries and state-of-the-art research instrumentation motivates researchers at all career levels. In FY 2012, the Major Research Instrumentation (MRI) program investments will continue to support research instrumentation capacity and a modern research infrastructure. FY 2012 funding of $90.0 million is unchanged from the FY 2010 Enacted level.

- The Science and Technology Policy Institute (STPI), a Federally Funded Research and Development Center sponsored by the NSF on behalf of the White House Office of Science and Technology Policy (OSTP), provides analysis on significant domestic and international science and technology policies and developments for OSTP and other federal agencies. STPI funding increases $100,000 above the FY 2010 Enacted to a total of $3.14 million to support additional analytical studies for OSTP.

- Science and Technology for America's Reinvestment: Measuring the Effect of Research on Innovation, Competitiveness, and Science (STAR METRICS) represents an innovative approach to developing information on how NSF and other federal research and development investments affect the innovation ecosystem. The FY 2012 Request of $1.40 million will enable NSF participation in interagency partnerships, which will contribute to the development of a data infrastructure that will be shared by major R&D agencies, such as NSF, NIH, DOE and EPA, and used by them and by OSTP. Funding will support piloting the integration of elements of STAR METRICS into a developing assessment and evaluation information system linked to NSF management information systems and developing assessment and evaluation plans for NSF programs using STAR METRICS tools. This investment is critical to the new NSF assessment and evaluation framework that is currently under development.

IA Support to NSF-wide Initiatives SEES and CIF21

IA Major Investments

(Dollars in Millions)

Area of Investment	FY 2010 Omnibus Actual	FY 2010 ARRA Actual	FY 2010 Enacted/ Annualized FY 2011 CR	FY 2012 Request	Change Over FY 2010 Enacted Amount	Change Over FY 2010 Enacted Percent
SEES	$21.00	-	$26.50	$26.50	-	-
CIF21	-	-	-	11.00	11.00	N/A

IA will support SEES and CIF21 by investing in research, education activities, and/or infrastructure. IA will support SEES by funding energy and climate-related research, education, and/or infrastructure activities in EPSCoR jurisdictions. IA will invest $11.0 million in CIF21 by funding new computational infrastructure including computing clusters and advanced computing architectures.

IA Funding for Centers Programs

IA Funding for Centers Programs

(Dollars in Millions)

	FY 2010 Omnibus Actual	FY 2010 Enacted/ Annualized FY 2011 CR	FY 2012 Request	Change Over FY 2010 Enacted Amount	Change Over FY 2010 Enacted Percent
Centers Programs	$13.27	$13.40	$1.30	-$12.10	-90.3%
Science and Technology Centers	*13.27*	*13.40*	*1.30*	*-12.10*	*-90.3%*

No FY 2010 obligations for centers were made with funds provided by the ARRA.

Detailed information on individual centers can be found in the NSF-Wide Investments chapter.

Centers Programs

NSF's investments in Science and Technology Centers (STCs) create platforms to support interdisciplinary exchange and discovery. The STC Integrative Partnerships program — which will fund 11 centers nationwide in FY 2012 — supports innovative, potentially transformative and complex research and education projects that require large-scale, long-term efforts. STCs engage the Nation's intellectual talent through partnerships between academia and other sectors including industry, national laboratories, and government. These collaborations create synergies that enhance innovation and the timely transfer of knowledge and technology from the laboratory to industry and policymakers; they support the training of the next generation of scientists, engineers and educators; and they foster the launch of spin-off companies and the creation of job opportunities.

In FY 2012, NSF-wide funding for STCs decreases by $7.02 million due to the planned sunset of six centers from the Class of FY 2002 cohort. Within IA, $1.30 million will support administrative costs associated with the next STC competition and post-award management for the existing 11 centers. A decrease of $12.10 million in the IA budget line reflects the transfer of funding to the Directorates for Biology (BIO), Computer and Information Science and Engineering (CISE), Geosciences (GEO), and Engineering (ENG) for management of individual STCs from the Class of 2010 cohort.

Program Evaluation and Performance Improvement

The Performance Information 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.

A number of program reviews and performance improvement activities are underway or planned for FY 2011-2012.

- Activities to evaluate the STC program will continue. A review, initiated in FY 2009 and organized by the American Association for the Advancement of Science, is nearing completion and a final report is expected in early 2011. The review examined the performance, accomplishments, and effectiveness of 17 STCs (from the 2000, 2002, and 2005/6 cohorts) as well as envisioned the future of the STC program.
- In FY 2011, the Office of Integrative Activities (OIA) plans to initiate an assessment of the accumulative impact of MRI investments on science and engineering across the full range of NSF-supported disciplines. OIA also plans to conduct site visits to selected institutions as part of post-award management of awards funded through the American Recovery and Reinvestment Act (ARRA).
- Oversight and reviews of awards for the Academic Research Infrastructure competition (a one-time initiative called for in ARRA) will be undertaken in FY 2011 to ensure that NSF and ARRA-specific post-award requirements are met.
- EPSCoR will identify and charge an independent, external organization with conducting an evaluation of the NSF EPSCoR program. The focus will be on progress in research competitiveness, infrastructure development, broadened participation in science and engineering, and STEM workforce development within EPSCoR jurisdictions. The estimated completion of this evaluation is by December 2013.
- Eligibility criteria for participation in NSF EPSCoR programs will be examined to identify changes that would enhance the effectiveness of the NSF EPSCoR investment toward strengthening research and education in science and engineering throughout the United States.

EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH (EPSCoR) **$160,530,000**
+$13,410,000 / 9.1%

EPSCoR Funding
(Dollars in Millions)

	FY 2010 Omnibus Actual	FY 2010 ARRA Actual	FY 2010 Enacted/ Annualized FY 2011 CR	FY 2012 Request	Change Over FY 2010 Enacted Amount	Change Over FY 2010 Enacted Percent
EPSCoR	**$147.11**	**$20.00**	**$147.12**	**$160.53**	**$13.41**	**9.1%**
Research Infrastructure Improvement (RII)	100.21	20.00	114.44	116.13	1.69	1.5%
Co-Funding	45.42	-	31.18	42.75	11.57	37.1%
Outreach	1.47	-	1.50	1.65	0.15	10.0%

Totals may not add due to rounding.

The FY 2012 increase to RII, Co-funding, and Outreach and Workshop activities is $13.41 million or 9.1 percent over FY 2010 funding. The FY 2012 Request of $160.53 million is consistent with the NSF growth trend for the Research and Related Activities (R&RA) account for FY 2009 through FY 2012. EPSCoR uses three major investment strategies to achieve its goal of improving the research and development competitiveness of researchers and institutions within EPSCoR jurisdictions. These strategies are:

- **Research Infrastructure Improvement (RII)**
  RII Track-1 awards provide up to $4.0 million per year for up to five years. They are designed to improve the research competitiveness of jurisdictions by strengthening their academic research infrastructure in areas of science and engineering supported by NSF and critical to the particular jurisdiction's science and technology initiative or plan. These areas are identified by the jurisdiction's EPSCoR governing committee as having the best potential to improve the jurisdiction's future R&D competitiveness.

  RII Track-2 awards provide up to $2.0 million per year for up to three years as collaborative awards to consortia of EPSCoR jurisdictions to support innovation-enabling cyberinfrastructure of regional, thematic, or technological importance. These awards facilitate the enhancement of discovery, learning, and economic development of EPSCoR jurisdictions through the use of cyberinfrastructure and other technologies.

  RII Inter-Campus and Intra-Campus Cyber Connectivity (RII C2) awards provide up to $1.0 million for up to two years to support the enhancement of inter-campus and intra-campus cyber connectivity within an EPSCoR jurisdiction. RII C2 awards are intended to enhance broadband access for academic research, and to broaden individual and institutional participation in science, technology, engineering, and mathematics (STEM) research and education activities within and among jurisdictions. RII C2 awards enhance broadband access for academic research and the use of cyberinfrastructure consistent with the jurisdiction's science and technology plan.

- **Co-Funding of Disciplinary and Multidisciplinary Research**
  EPSCoR co-invests with NSF directorates and offices meritorious proposals from individual investigators, groups, and centers in EPSCoR jurisdictions that are submitted to the Foundation's research and education programs, and crosscutting initiatives. These proposals are merit reviewed in

NSF disciplinary programs and recommended for award but cannot be funded without the combined, leveraged support of EPSCoR.

- **Outreach and Workshops**
  The EPSCoR Office solicits requests for support of workshops, conferences, and other community-based activities designed to explore opportunities in emerging areas of science and engineering, and to share best practices in strategic planning, diversity, communication, cyberinfrastructure, evaluation, and other capacity-building areas of importance to EPSCoR jurisdictions.

In general, about 24 percent of the EPSCoR portfolio is available for new research awards. The remaining 76 percent funds continuing awards made in prior years.

Number of People Involved in EPSCoR Activities

	FY 2010 Actual Estimate	FY 2010 ARRA Estimate	FY 2010 Enacted/ Annualized FY 2011 CR Estimate	FY 2012 Estimate
Senior Researchers	625	13	533	682
Other Professionals	219	31	246	268
Postdoctorates	66	-	80	87
Graduate Students	523	8	569	620
Undergraduate Students	547	8	489	533
Total Number of People	**1,980**	**60**	**1,917**	**2,190**