



A [^](Virtual) Tour of NCSES Data & Information

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National Center for Science and Engineering Statistics

National Science Foundation

www.nsf.gov/statistics/

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International Year of Statistics Symposium

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Washington DC



National Science Foundation

- ❖ Created in 1950 “to promote the progress of science; advance the national health, prosperity, and welfare; to secure the national defense...”
- ❖ Annual budget of ~\$7.0 billion
- ❖ Funds ~20% of federally supported basic research at the nation’s colleges and universities



NCSES – A federal statistical agency

- ❖ 1 of 13
- ❖ Part of National Science Foundation
- ❖ Core principles:
 - Relevance to policy issues
 - Credibility among data users
 - Trust among data providers
 - Independence



NCSES

- ❖ Serves as NSF's clearinghouse on data and information on the U.S. science and engineering enterprise

- ❖ Provides data & information on:
 - Scientists & engineers
 - Research & development
 - U.S. competitiveness
 - Condition of STEM education



NCSES Data (1)

- ❖ **Scientists & engineers**
 - Demographics: age, sex, race, ethnicity
 - Education: degree level, degree field, time to degree, debt
 - Employment/occupation: work activities, salary, position
 - More...

NCSES Data (2)

- ❖ Research & development
 - R&D expenditures (\$)
 - By funder: academic, private, gov't
 - By performer: academic, private, gov't
 - By character of work: basic, applied, development
 - By state
 - More...

NCSES Data (3)

- ❖ U.S competitiveness
 - Innovation rates
 - Patent activity, publications
 - More...

- ❖ Condition and progress of STEM education
 - Graduate students in S&E
 - Postdoctoral appointments
 - Elementary, secondary, baccalaureate
 - More...

Data Availability

- ❖ Aggregate statistics
 - Predefined Data Tables
 - Profiles: Academic Institution & State
 - Create your own table tools

- ❖ Microdata files
 - Public use files
 - Restricted use files



Information Availability

- ❖ Periodic reports
 - Short, topic focused briefs
 - Interactive digests

- ❖ Key publications
 - *Science & Engineering Indicators*
 - *Women, Minorities, and Persons with Disabilities in Science & Engineering*



Quick Tour of NCSES Website

<http://www.nsf.gov/statistics/>



National Science Foundation
WHERE DISCOVERIES BEGIN

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Explore our website for data on research and development, the science and engineering workforce, the condition and progress of STEM education, and U.S. competitiveness in science, engineering, technology, and R&D. [Learn more about NCSES.](#)

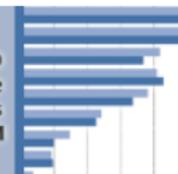
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- [Business R&D Performance in the United States Increased in 2011](#)
InfoBriefs | NSF 13-335 | September 19, 2013
- [Two NSF Surveys on R&D Document Varied Relationships between Businesses and Academia](#)
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- [Business Research and Development and Innovation: 2008–10](#)
Detailed Statistical Tables | NSF 13-332 | September 18, 2013

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**Business R&D
Performance in the
United States
Increased in 2011**



Did you know?

Postdocs at federally funded research and development centers: 2010: 3,011

Key Publications

[Science and Engineering Indicators](#)

[Women, Minorities, and Persons with Disabilities in Science and Engineering](#)

Survey

- [Business R&D and Innovation](#)

Past publications

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Business R&D Performance in the United States Increased in 2011

NSF 13-335 | September 2013 |  [PDF](#)

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by Raymond M. Wolfe^[1]

Companies spent \$294 billion on research and development performed in the United States during 2011, compared with \$279 billion during 2010 ([table 1](#)). Funding from the companies' own sources was \$222 billion during 2010 and \$239 billion during 2011; funding from other sources was \$57 billion in 2010 and \$55 billion in 2011 ([table 2](#)). Data for this InfoBrief are from the Business R&D and Innovation Survey (BRDIS), which was developed and cosponsored by the National Science Foundation and Census Bureau.

TABLE 1. Funds spent for business R&D performed in the United States, by source of funds and size of company: 2010–11 (Millions of U.S. dollars)

Selected characteristic	2010	2011
Domestic R&D performance ^a	278,977	294,093
Source of funds		
Paid for by the company	221,706	238,768
Paid for by others	57,271	55,324
Federal	34,199 ⁱ	31,309 ⁱ
Other ^b	23,072	24,015
Size of company (number of domestic employees)		
5–24	12,573	10,981
25–49	8,625	10,861
50–99	8,855	9,468
100–249	11,866	12,528
250–499	10,283	12,955
500–999	10,117	10,027
1,000–4,999	48,228	50,485
5,000–9,999	27,463	24,951
10,000–24,999	41,835	49,214
25,000 or more	99,133	102,623

i = > 50% of value imputed.

Survey

- Business R&D and Innovation
- Higher Education Research and Development

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Two NSF Surveys on R&D Document Varied Relationships between Businesses and Academia

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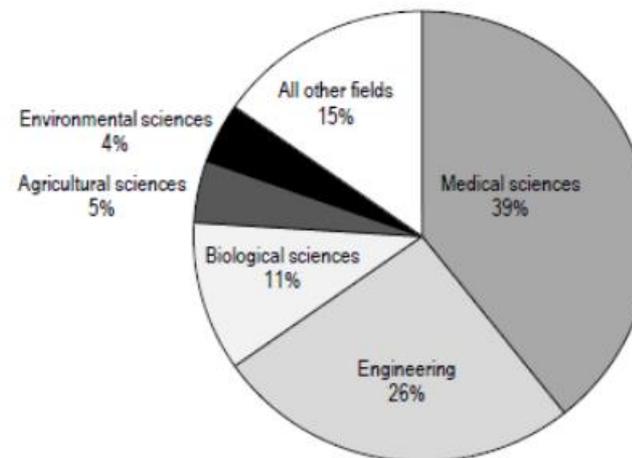


by Ronda Britt and Brandon Shackelford^[1]

Universities reported that 4.9%, or \$3.2 billion, of their \$65 billion total in research and development expenditures in FY 2011 was funded by businesses, according to the National Science Foundation's (NSF's) Higher Education Research and Development (HERD) Survey. This percentage has remained very stable since the late 1970s (between 5% and 7% of total R&D expenditures).^[2]

Overall, the share of academic R&D funded by businesses did not differ much between private institutions (5.2%) and public institutions (4.7%). Relatively large shares of the R&D funding provided by businesses went toward two fields: the medical sciences (39%) and engineering (26%) ([figure 1](#)). The remainder of business-funded academic R&D was divided between biological sciences, agricultural sciences, environmental sciences, and other fields. Compared with academic R&D funded by businesses, the academic sector's overall R&D expenditures were less concentrated in the fields of medical sciences and engineering (31% and 15%, respectively, of the \$65 billion total).

FIGURE 1. Higher education R&D expenditures funded by businesses, by R&D field: FY 2011



NCSES Data

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Data from the Survey of Earned Doctorates

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Data table extract

TABLE 127. R&D-active and non-R&D-active companies in the United States that introduced new or significantly improved products or processes : company size classification: 2008–10
(Percent)

Industry	NAICS code	Compan- ies ^a (number)	Product								C i ne ir	
			Companies that introduced a new or significantly improved product or process		Companies that introduced new or significantly improved goods or services		New goods		New services			
			Yes	No	Yes	No	Yes	No	Yes	No		
	21–23, 31–33,											
All industries	42–81	1,231,009	14.9	83.3	10.2	87.0	5.5	91.9	7.8	89.4		
Manufacturing industries	31–33	109,091	30.6	68.0	23.3	74.0	20.2	77.3	10.2	86.3		
Food	311	8,339	34.3	65.0	24.5	74.4	23.6	75.4	5.7	91.1		
Beverage and tobacco products	312	1,264	32.5	67.4	20.5	79.4	20.5	79.4	9.9	85.9		
Textiles, apparel, and leather products	313–316	4,745	27.7	70.2	23.2	73.4	22.3	75.5	8.9	86.9		
Wood products	321	4,815	16.6	82.3	9.2	87.4	5.9	91.6	6.3	90.3		
Paper	322	1,673	20.2	78.6	11.5	83.8	10.3	84.8	3.7	91.3		
Printing and related support activities	323	9,348	25.6	71.6	16.1	78.9	7.3	88.9	13.7	81.4		
Petroleum and coal products	324	306	36.3	63.0	33.7	65.6	32.1	67.2	19.0	79.2		
Chemicals	325	5,096	47.1	51.2	40.6	56.7	35.0	62.5	17.6	78.7		
Basic chemicals	3251	719	37.3	61.1	31.4	65.6	29.5	67.5	8.0	88.5		
Resin, synthetic rubber, fibers, and filaments	3252	486	22.3	72.4	18.2	76.1	18.2	76.1	5.0	88.7		
Pesticide, fertilizer, and other agricultural chemical	3253	171	51.3	46.9	16.2	82.0	15.0	83.2	10.5	87.7		
Pharmaceuticals and medicines	3254	1,681	56.3	42.0	49.4	48.8	33.9	64.1	27.8	70.4		
Soap, cleaning compound, and toilet preparation	3256	729	51.1	47.2	46.0	48.3	45.5	50.4	21.8	69.8		
Paint, coating, adhesive, and other chemical	3255, 3259	1,310	46.9	52.6	42.8	56.2	42.5	56.6	13.1	84.0		

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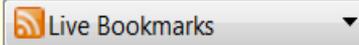
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New releases and data from the National Center for Science and Engineering Statistics (NCSES)

[Federal Funding for Research Drops by 9% in FY 2011](#)

Tuesday, September 24, 2013 1:27 PM

Current-dollar federal obligations for research decreased 9.0% between FY 2010 and FY 2011 (\$63.7 billion to \$58.0 billion). This decline resulted from the last of the 2009 American Recovery and Reinvestment Act stimulus funds being obligated in FY 2010. Research obligations are estimated to remain relatively flat at \$58.1 billion in FY 2012 and are projected to increase by \$1.9 billion (3.3%) to \$60.0 billion in FY 2013. Data are from the Survey of Federal Funds for Research and Development.

[Counts of Postdoctoral Appointees in Science, Engineering, and Health Rise with Reporting Improvements](#)

Monday, September 23, 2013 11:57 AM

The total number of postdoctoral appointees reported in the 2010 Survey of Graduate Students and Postdoctorates in Science and Engineering (GSS) grew to 63,415 in 2010, an increase of 10% over the 2009 total and 25% over the 2007 total. These 1- and 3-year growth rates are the highest in the history of the GSS and likely reflect improved reporting, as well as the continued expansion of postdoc employment in academia.

[Business R&D Performance in the United States Increased in 2011](#)

Thursday, September 19, 2013 1:00 PM

Companies spent \$294 billion on research and development performed in the United States during 2011, compared with \$279 billion during 2010. Funding from the companies own sources was \$222 billion during 2010 and \$239 billion during 2011; funding from other sources was \$57 billion in 2010 and \$55 billion in 2011. Data are from the Business R&D and Innovation Survey, which is cosponsored by the National Science Foundation and Census Bureau.

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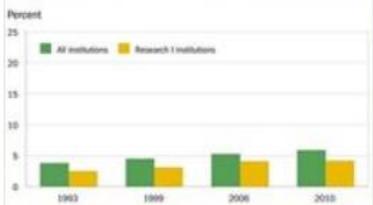
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By the Numbers

Updated about a month ago

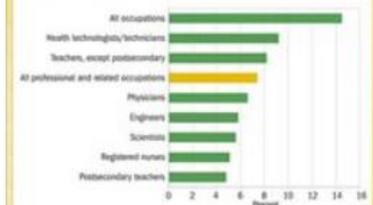
Information from the National Science Foundation's National Center for Science and Engineering Statistics

Represented minorities as a percentage of full-time, full professors with science and health doctorates, by institution of employment: 1993-2010



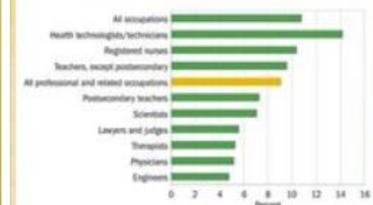
Women, Minorities, and Persons with Disabilities in Science and Engineering: 2010

Selected Hispanics 16 years and older as a percentage of selected occupations: 2011



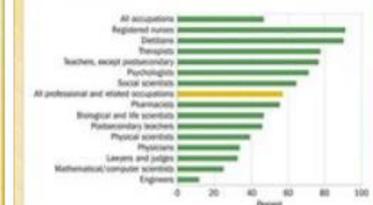
Women, Minorities, and Persons with Disabilities in Science and Engineering: 2010

Selected blacks 16 years and older as a percentage of selected occupations: 2011



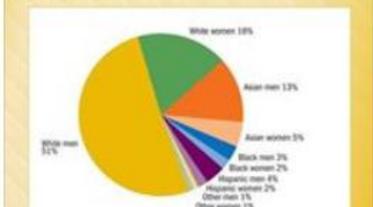
Women, Minorities, and Persons with Disabilities in Science and Engineering: 2010

Selected women 16 years and older as a percentage of selected occupations: 2011



Women, Minorities, and Persons with Disabilities in Science and Engineering: 2010

Scientists and engineers working in science and engineering occupations: 2010



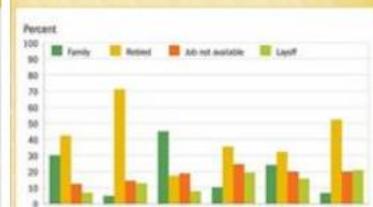
Women, Minorities, and Persons with Disabilities in Science and Engineering: 2010

Reasons for part-time employment among scientists and engineers: 2010



Women, Minorities, and Persons with Disabilities in Science and Engineering: 2010

Reasons for not working among scientists and engineers: 2010



Women, Minorities, and Persons with Disabilities in Science and Engineering: 2010

Employment rates of scientists and engineers: 2010



Women, Minorities, and Persons with Disabilities in Science and Engineering: 2010

Chat (5)



Thank You!



Questions?

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