

The University of Massachusetts

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University of Massachusetts R&D EXPENDITURES FY2015

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Introduction

The *FY2015 Annual Research and Development Expenditures Report* presents information on the research and development expenditures for the University of Massachusetts System. This report is based on data that our five UMass campuses and the UMass President's Office provide to the National Science Foundation (NSF) through its Higher Education Research and Development Survey (previously known as the annual Survey of Research and Development Expenditures at Universities and Colleges). In addition to the FY2015 data, this report also provides trend data in many cases. All comparison data presented in this report are sourced from the NSF HERD Data tables. These tables can be found at <http://ncesdata.nsf.gov/herd/2014/>.

The report is comprised of two sections: Total R&D Expenditures (pages 1-15) and Life Sciences R&D Expenditures (pages 16-18).

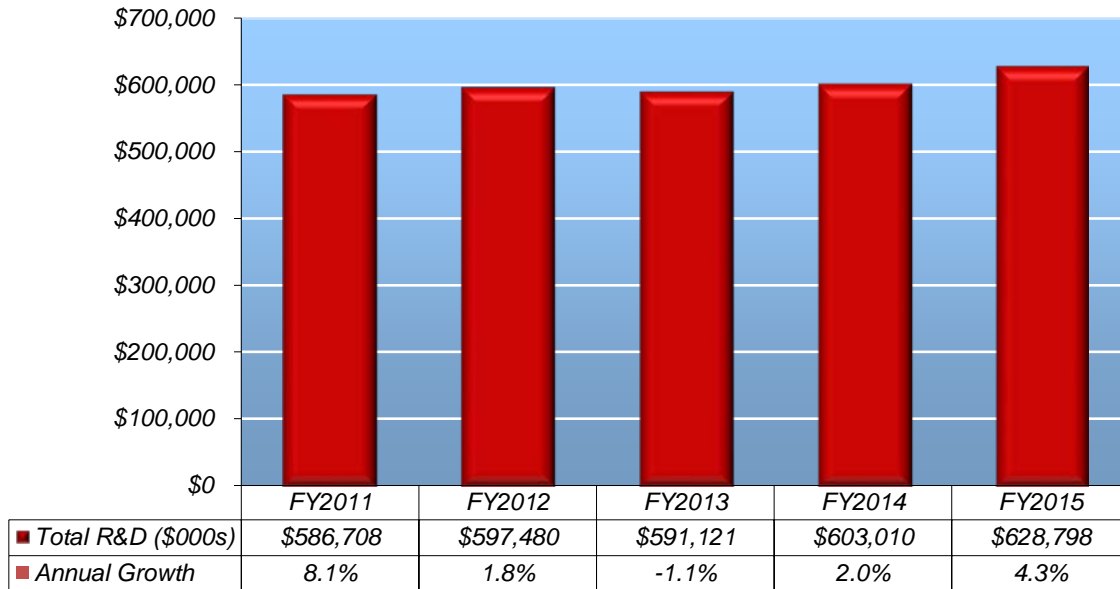
Major Highlights:

- **UMASS Total R&D Expenditures** – Total FY2015 R&D Expenditures for the University of Massachusetts System was reported at \$628.8 million, which represents a 4.3 percent increase from the FY2014 total of \$603.0 million.
- **Growth in Total R&D Expenditures (UMASS versus All U.S. Institutions)** – In FY2014 (most recent comparison data available), while Total R&D expenditures for the UMass system increased by two percent over the previous year, All U.S. Institutions reflected a growth rate of 0.2 percent.
- **UMASS R&D Expenditures in Science and Engineering** – In FY2015, an estimated \$559.65 million (89%) of our R&D expenditures were in sciences and engineering (S&E).
- **UMASS State Ranking in Total R&D Expenditures** – Among Massachusetts' colleges and universities, UMass ranked 3rd in Total R&D Expenditures, behind only MIT and Harvard. In FY 2014, UMass comprised nearly one-fifth (17%) of the Total Expenditures of all MA institutions. UMass, MIT, Harvard and BU together account for 80% of the academic science and engineering R&D expenditures in the state (Rankings based on FY2014 data).
- **UMASS R&D Expenditures by Funding Source (FY2015)** – In terms of funding sources, 57% is from the federal government, 28% is from institutional sources, 7% is from state and local government, 4% from businesses, 5% from non-profit organizations, and 1% is from other sources (e.g., private foundations).
- **UMASS Areas of Funding Growth** – Between the reporting cycles FY2014-15, industry/business sponsorship increased by one percent from 8% to 9%, and institutional funds stayed steady at 28%. State and local government funding also increased from 4% to 7% of all funds. Federal funding dropped from 60% to 57% of all funds.
- **Life Sciences Continues to Comprise More Than Half of all R&D Expenditures at UMass** – At \$357.8 million, the life sciences constitute more than half of UMass's total R&D expenditures (56.9%). FY2015 distribution of R&D expenditures by field is:

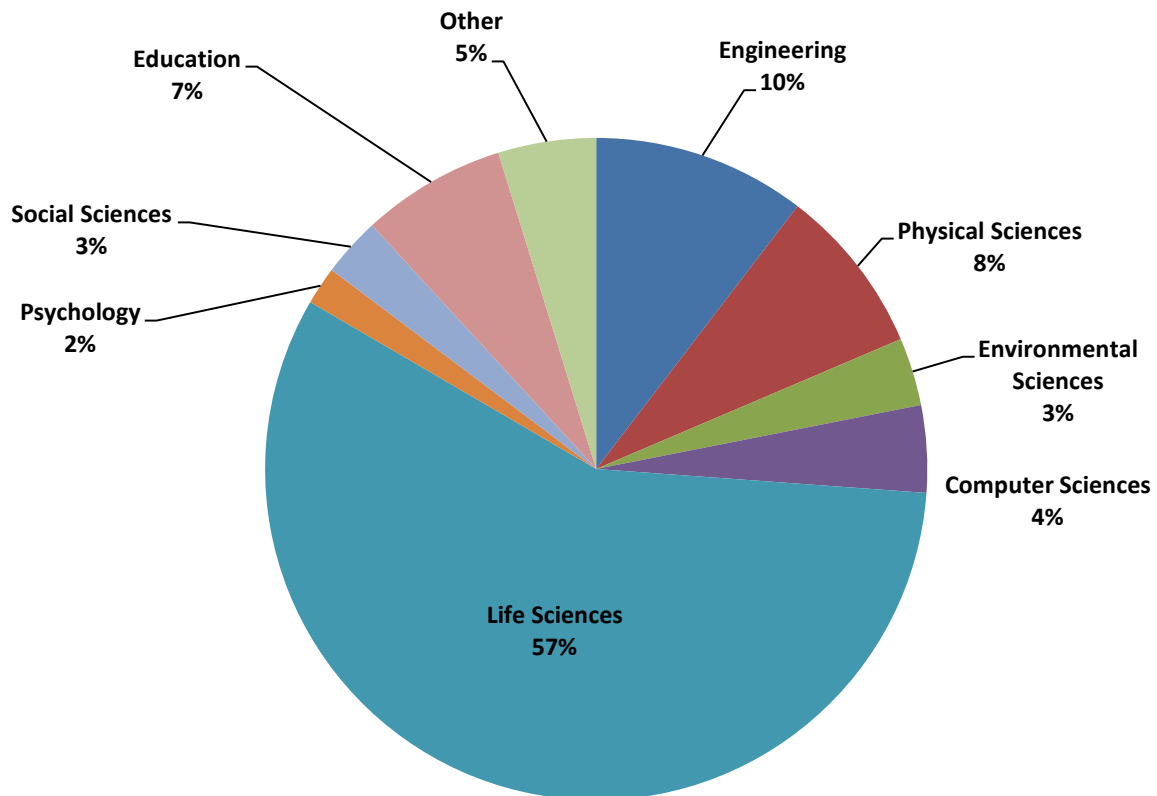
Life Sciences	56.9%	Social Sciences	2.9%
Physical Sciences	8.1%	Non-Science and Engineering	11.0%
Engineering	10.3%	Psychology	1.8%
Computer Sciences	4.2%	Mathematical Sciences	0.6%
Environmental Sciences	3.3%	Other Sciences	0.8%

UMASS System

Total R&D Expenditures FY2011 - FY2015

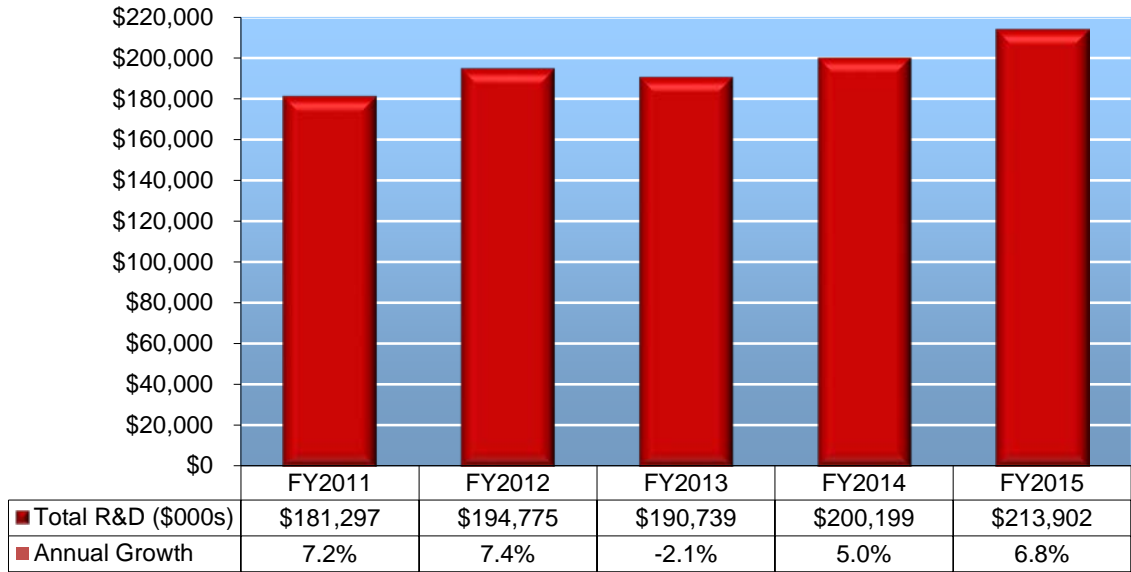


Total R&D Expenditures FY2015

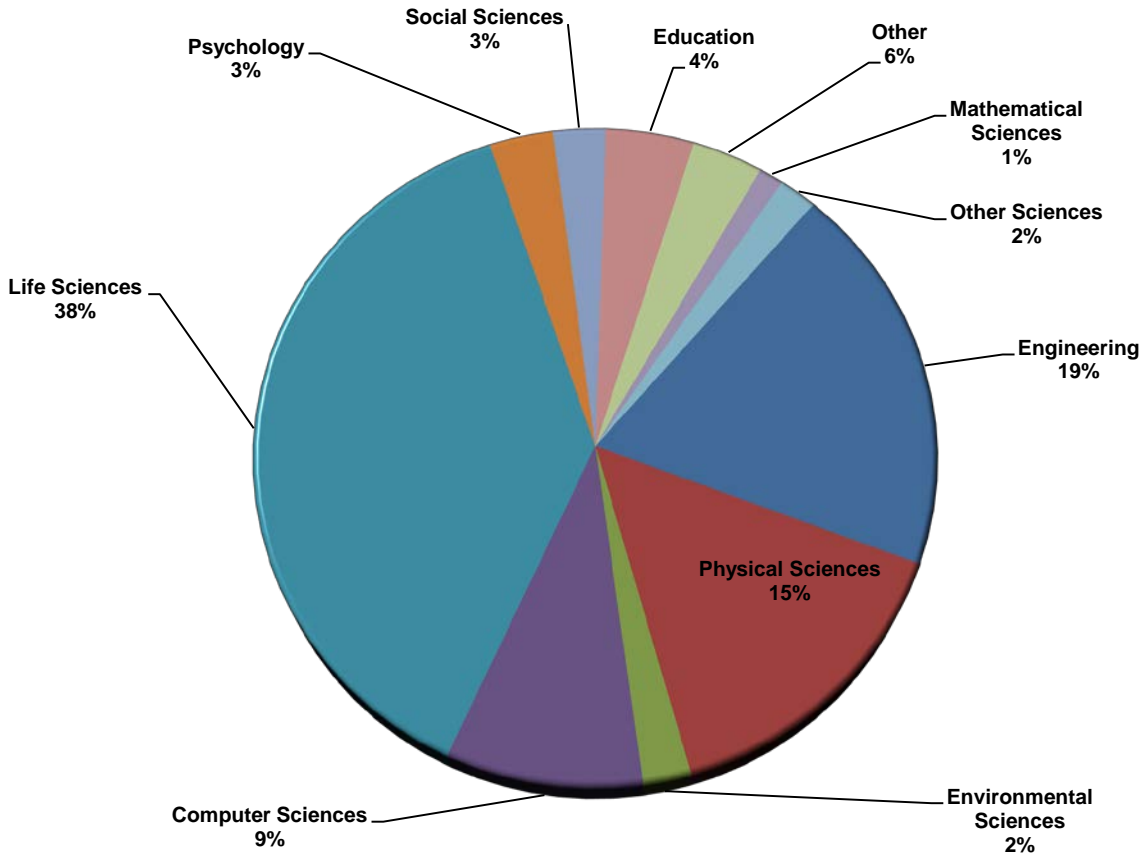


Amherst

Total R&D Expenditures FY2011 - FY2015

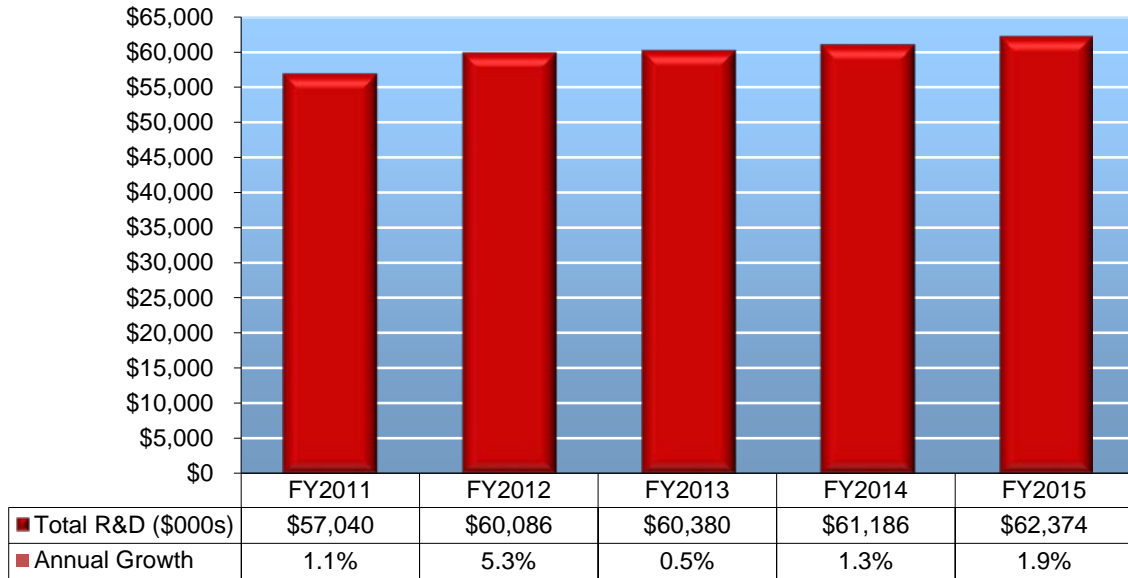


Total R&D Expenditures FY2015



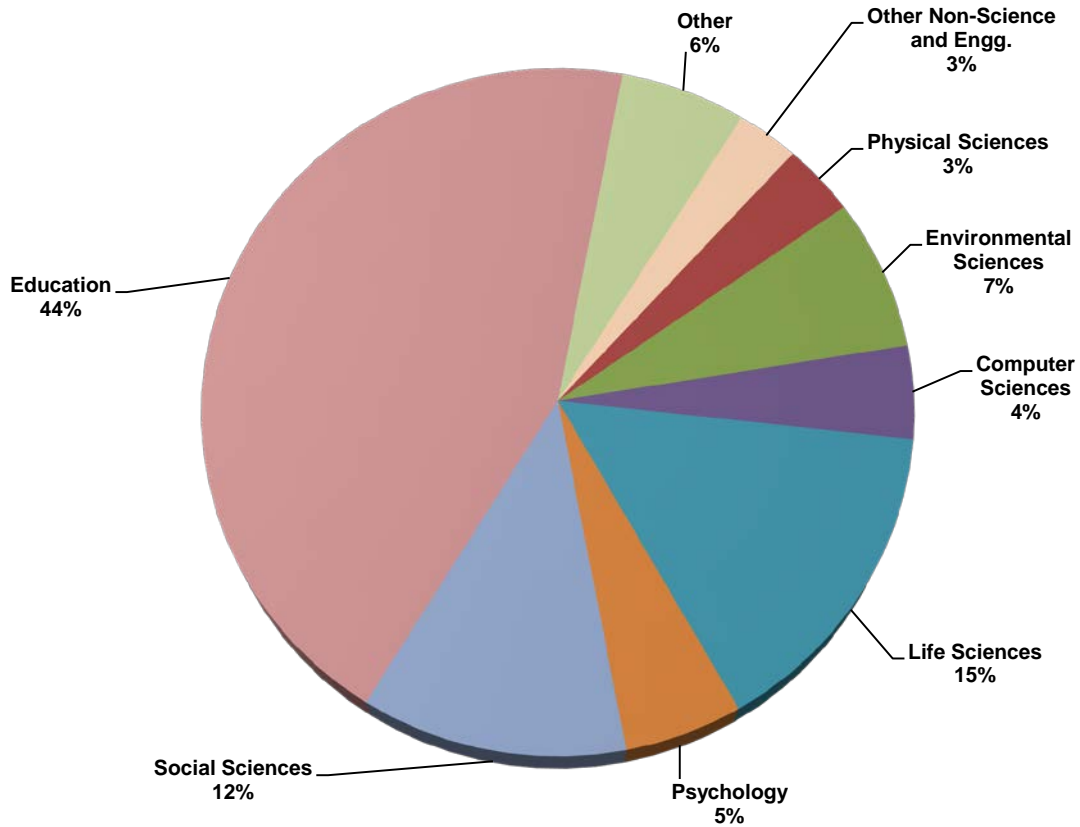
Boston

Total R&D Expenditures FY2011 - FY2015



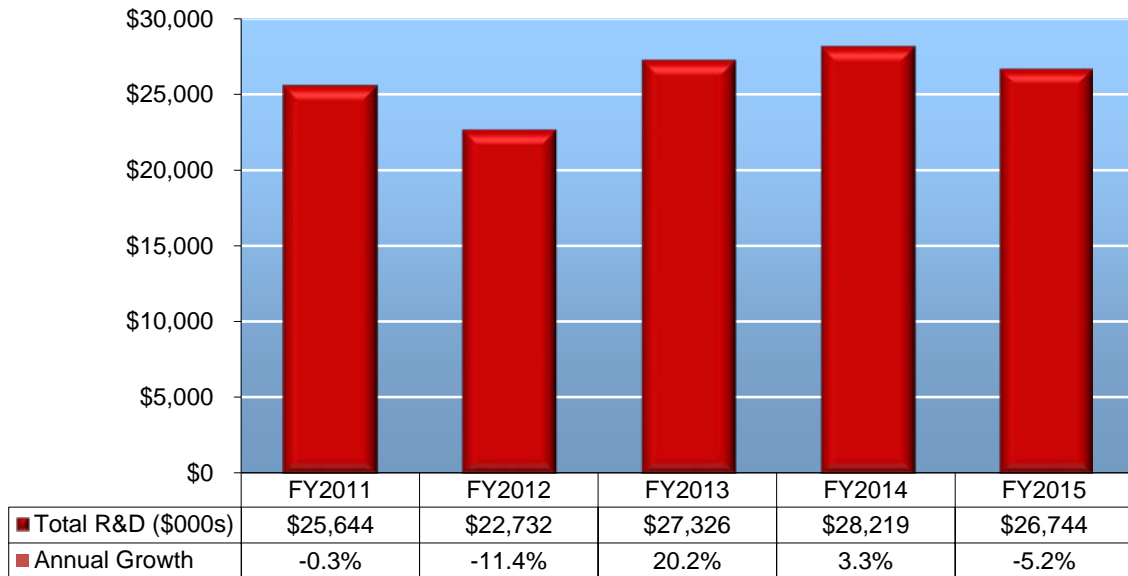
Please Note: UMB has revised its Total R&D Expenditures for FY14.

Total R&D Expenditures FY2015

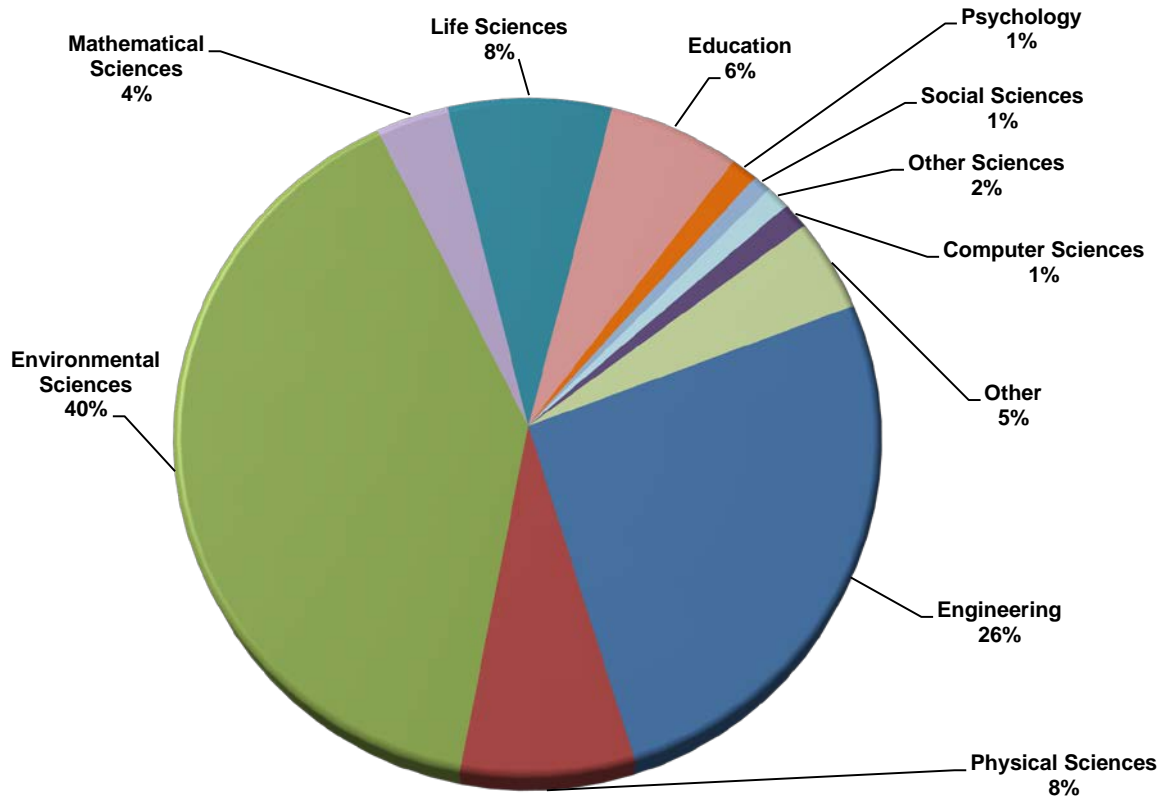


Dartmouth

Total R&D Expenditures FY2011 - FY2015



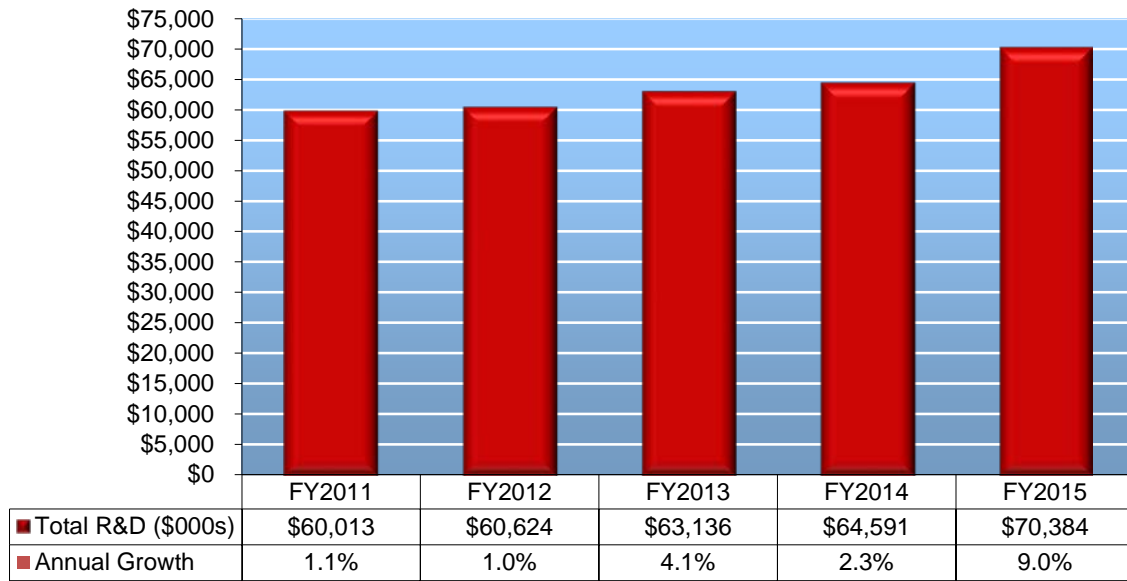
Total R&D Expenditures FY2015



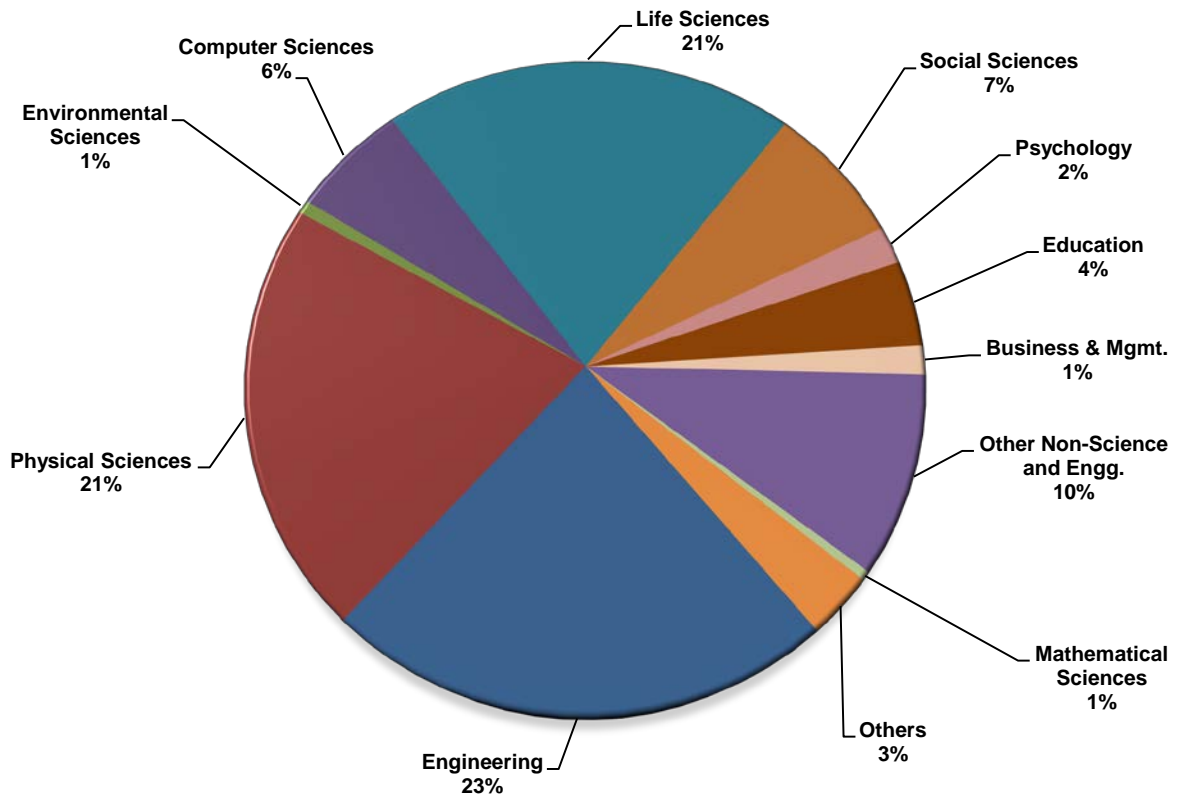
Total does not add to 100% due to rounding.

Lowell

Total R&D Expenditures FY2011 - FY2015

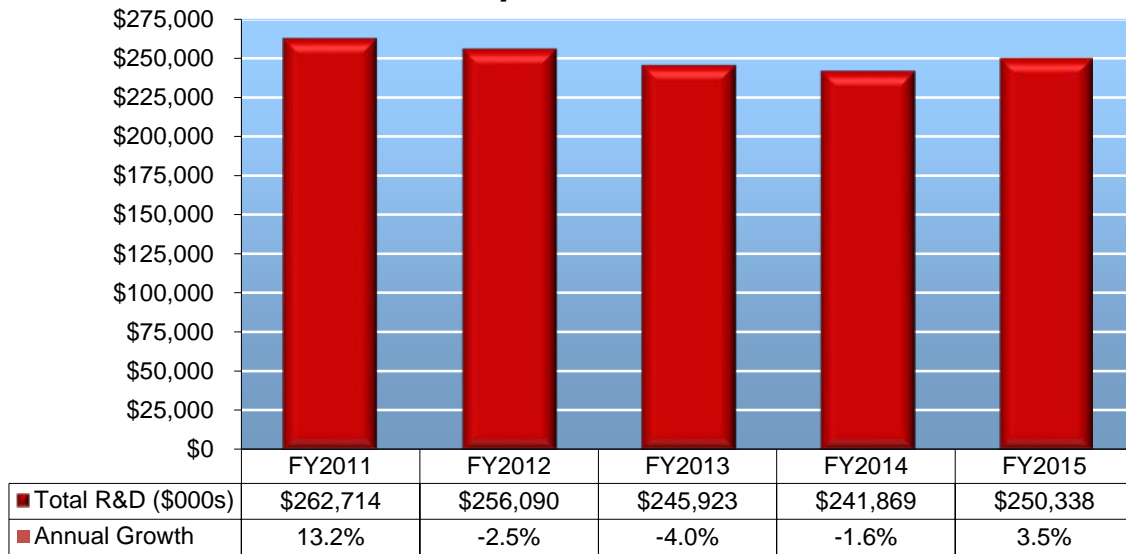


Total R&D Expenditures FY2015



Medical School

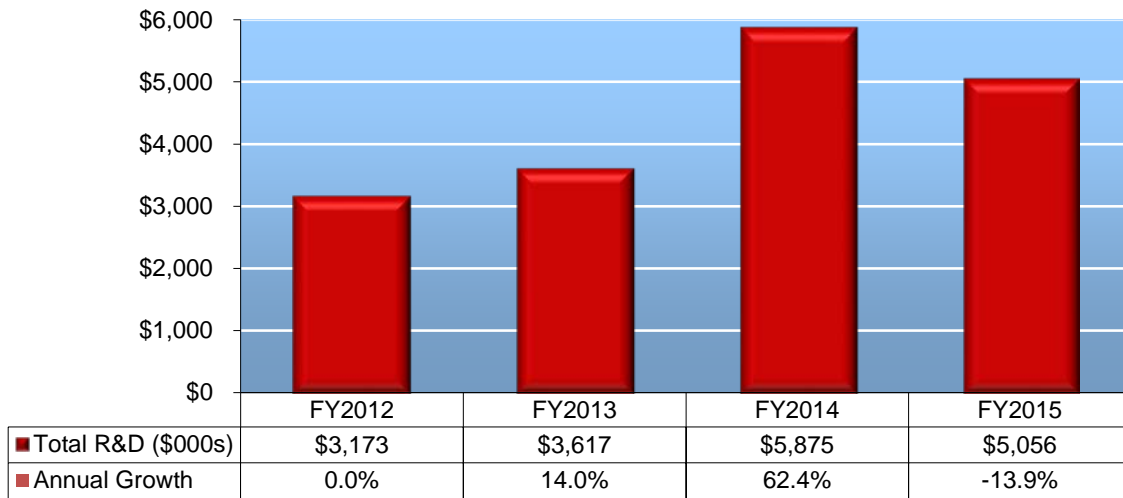
Total R&D Expenditures FY2011 - FY2015



All of the Medical School's R&D expenditures are in the Life Sciences.

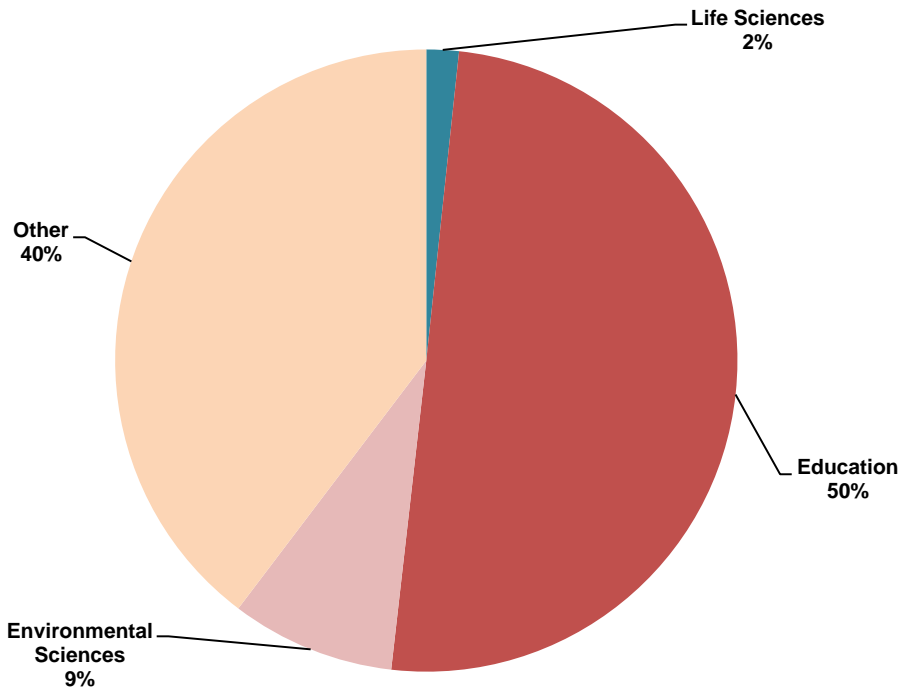
President's Office

Total R&D Expenditures FY2012 - FY2015



President's Office

Total R&D Expenditures FY2015



Total does not add to 100% due to rounding.

FY 2015 Total R&D Expenditures by Field (Federal and Non-Federal)

FIELD	UMA					UMB				
	Federal	Non-Federal	UMA Total	% of UMA Total	% of Field	Federal	Non-Federal	UMB Total	% of UMB Total	% of Field
Engineering (Total)	\$21,158	\$20,232	\$41,390	19.3%	63.7%	\$250	\$183	\$433	0.7%	0.7%
Aeronautical & Astronomical	\$17	\$10	\$27	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Bioengineering/Biomedical	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Chemical	\$5,686	\$4,671	\$10,357	4.8%	62.8%	\$0	\$0	\$0	0.0%	0.0%
Civil	\$4,972	\$7,103	\$12,075	5.6%	81.5%	\$30	\$8	\$38	0.1%	0.0%
Electrical	\$6,797	\$4,708	\$11,505	5.4%	58.3%	\$220	\$175	\$395	0.6%	2.0%
Mechanical	\$3,535	\$3,461	\$6,996	3.3%	61.4%	\$0	\$0	\$0	0.0%	0.0%
Metallurgical & Materials	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Other	\$151	\$279	\$430	0.2%	29.9%	\$0	\$0	\$0	0.0%	0.0%
Physical Sciences (Total)	\$19,630	\$12,201	\$31,831	14.9%	62.3%	\$1,651	\$496	\$2,147	3.4%	4.2%
Astronomy	\$2,122	\$1,075	\$3,197	1.5%	96.5%	\$0	\$0	\$0	0.0%	0.0%
Chemistry	\$9,061	\$6,347	\$15,408	7.2%	67.7%	\$871	\$396	\$1,267	2.0%	5.6%
Physics	\$8,447	\$4,779	\$13,226	6.2%	52.8%	\$780	\$100	\$880	1.4%	3.5%
Other	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Environmental Sciences (Total)	\$2,980	\$1,774	\$4,754	2.2%	22.9%	\$3,163	\$1,300	\$4,463	7.2%	21.5%
Atmospheric	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Earth Sciences	\$2,980	\$1,766	\$4,746	2.2%	91.0%	\$0	\$0	\$0	0.0%	0.0%
Oceanography	\$0	\$0	\$0	0.0%	0.0%	\$3,130	\$1,071	\$4,201	6.7%	28.3%
Other	\$0	\$8	\$8	0.0%	1.1%	\$33	\$229	\$262	0.4%	37.4%
Mathematical Sciences (Total)	\$1,694	\$893	\$2,587	1.2%	67.2%	\$2	\$25	\$27	0.0%	0.7%
Computer Sciences (Total)	\$13,371	\$5,942	\$19,313	9.0%	72.7%	\$1,889	\$844	\$2,733	4.4%	10.3%
Life Sciences (Total)	\$32,353	\$48,812	\$81,165	37.9%	22.7%	\$4,949	\$4,413	\$9,362	15.0%	2.6%
Agricultural	\$14,100	\$10,815	\$24,915	11.6%	99.5%	\$124	\$0	\$124	0.2%	0.0%
Biological	\$11,562	\$8,440	\$20,002	9.4%	19.6%	\$2,188	\$1,117	\$3,305	5.3%	3.2%
Medical	\$5,239	\$6,792	\$12,031	5.6%	9.9%	\$21	\$1,337	\$1,358	2.2%	1.1%
Other	\$1,452	\$22,765	\$24,217	11.3%	22.2%	\$2,616	\$1,959	\$4,575	7.3%	4.2%
Psychology (Total)	\$3,810	\$2,872	\$6,682	3.1%	57.5%	\$1,566	\$1,689	\$3,255	5.2%	28.0%
Social Sciences (Total)	\$1,324	\$4,155	\$5,479	2.6%	30.3%	\$1,505	\$5,818	\$7,323	11.7%	40.5%
Economics	\$131	\$498	\$629	0.3%	42.9%	\$78	\$154	\$232	0.4%	15.8%
Political Science	\$398	\$824	\$1,222	0.6%	25.0%	\$53	\$3,334	\$3,387	5.4%	69.2%
Sociology	\$520	\$2,471	\$2,991	1.4%	47.4%	\$1,338	\$1,446	\$2,784	4.5%	44.1%
Other	\$275	\$362	\$637	0.3%	11.7%	\$36	\$884	\$920	1.5%	17.0%
Other Sciences (Total)	\$886	\$3,096	\$3,982	1.9%	82.0%	\$489	\$73	\$562	0.9%	0.0%
TOTAL, SCI & ENG FIELDS	\$97,206	\$99,977	\$197,183	92.2%	35.2%	\$15,464	\$14,841	\$30,305	48.6%	5.4%
FIELD	Federal	Non-Federal	UMA Total	% of UMA Total	% of Field	Federal	Non-Federal	UMB Total	% of UMB Total	% of Field
Education	\$5,010	\$4,256	\$9,266	4.3%	21.0%	\$12,882	\$14,720	\$27,602	44.3%	62.6%
Law	\$0	\$0	\$0	0.0%	#DIV/0!	\$0	\$0	\$0	0.0%	0.0%
Humanities	\$60	\$3,368	\$3,428	1.6%	67.5%	\$60	\$327	\$387	0.6%	7.6%
Visual and Performing Arts	\$6	\$132	\$138	0.1%	18.6%	\$0	\$51	\$51	0.1%	6.9%
Business and Management	\$254	\$1,311	\$1,565	0.7%	34.7%	\$0	\$1,637	\$1,637	2.6%	36.3%
Comm., Journalism & Library Sci	\$0	\$369	\$369	0.2%	75.5%	\$0	\$0	\$0	0.0%	0.0%
Social Work	\$107	\$99	\$206	0.0%	0.0%	\$247	\$323	\$570	0.9%	0.0%
Other Non-Science and Engin.	\$774	\$973	\$1,747	0.8%	13.0%	\$0	\$1,822	\$1,822	2.9%	13.6%
TOTAL, NON-SCI & ENG FIELDS	\$6,211	\$10,508	\$16,719	7.8%	24.2%	\$13,189	\$18,880	\$32,069	51.4%	46.4%
TOTAL, SCI & ENG FIELDS	\$97,206	\$99,977	\$197,183	92.2%	35.2%	\$15,464	\$14,841	\$30,305	48.6%	5.4%
GRAND TOTAL	\$103,417	\$110,485	\$213,902	100.0%		\$28,653	\$33,721	\$62,374	100.0%	9.9%

Source: Campus NSF HERD Surveys. All dollars are in thousands.
 Note: Percent of Total is the percent each field represents of total campus or system R&D expenditures in all fields.
 Percent of Field is the percent of the UMass system's expenditures in a particular field represented by that campus.

FY 2015 Total R&D Expenditures by Field (Federal and Non-Federal) – Cont'd

FIELD	UMD					UML				
	Federal	Non-Federal	UMD Total	% of UMD Total	% of Field	Federal	Non-Federal	UML Total	% of UML Total	% of Field
Engineering (Total)	\$2,368	\$4,612	\$6,980	26.1%	10.7%	\$5,706	\$10,495	\$16,201	23.0%	24.9%
Aeronautical & Astronomical	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Bioengineering/Biomedical	\$302	\$798	\$1,100	4.1%	100.0%	\$0	\$0	\$0	0.0%	0.0%
Chemical	\$0	\$0	\$0	0.0%	0.0%	\$2,285	\$3,846	\$6,131	8.7%	37.2%
Civil	\$360	\$1,159	\$1,519	5.7%	10.3%	\$550	\$629	\$1,179	1.7%	8.0%
Electrical	\$1,231	\$1,932	\$3,163	11.8%	16.0%	\$1,478	\$3,210	\$4,688	6.7%	23.7%
Mechanical	\$475	\$536	\$1,011	3.8%	8.9%	\$1,393	\$1,985	\$3,378	4.8%	29.7%
Metallurgical & Materials	\$0	\$3	\$3	0.0%	100.0%	\$0	\$0	\$0	0.0%	0.0%
Other	\$0	\$184	\$184	0.7%	12.8%	\$0	\$825	\$825	1.2%	57.3%
Physical Sciences (Total)	\$586	\$1,481	\$2,067	7.7%	4.0%	\$10,573	\$4,512	\$15,085	21.4%	29.5%
Astronomy	\$0	\$116	\$116	0.4%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Chemistry	\$470	\$1,065	\$1,535	5.7%	6.7%	\$2,664	\$1,886	\$4,550	6.5%	20.0%
Physics	\$116	\$300	\$416	1.6%	1.7%	\$7,909	\$2,626	\$10,535	15.0%	42.0%
Other	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Environmental Sciences (Total)	\$3,105	\$7,525	\$10,630	39.7%	51.2%	\$241	\$231	\$472	0.7%	2.3%
Atmospheric	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Earth Sciences	\$0	\$0	\$0	0.0%	0.0%	\$241	\$231	\$472	0.7%	9.0%
Oceanography	\$3,105	\$7,525	\$10,630	39.7%	71.7%	\$0	\$0	\$0	0.0%	0.0%
Other	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Mathematical Sciences (Total)	\$335	\$588	\$923	3.5%	24.0%	\$16	\$295	\$311	0.4%	8.1%
Computer Sciences (Total)	\$71	\$264	\$335	1.3%	1.3%	\$2,350	\$1,828	\$4,178	5.9%	15.7%
Life Sciences (Total)	\$603	\$1,472	\$2,075	7.8%	0.6%	\$7,984	\$6,786	\$14,770	21.0%	4.1%
Agricultural	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Biological	\$603	\$1,343	\$1,946	7.3%	1.9%	\$856	\$1,040	\$1,896	2.7%	1.9%
Medical	\$0	\$22	\$22	0.1%	0.0%	\$86	\$39	\$125	0.2%	0.1%
Other	\$0	\$107	\$107	0.4%	0.1%	\$7,042	\$5,707	\$12,749	18.1%	11.7%
Psychology (Total)	\$66	\$272	\$338	1.3%	2.9%	\$245	\$1,092	\$1,337	1.9%	11.5%
Social Sciences (Total)	\$0	\$231	\$231	0.9%	1.3%	\$1,883	\$3,186	\$5,069	7.2%	28.0%
Economics	\$0	\$0	\$0	0.0%	0.0%	\$0	\$606	\$606	0.9%	41.3%
Political Science	\$0	\$1	\$1	0.0%	0.0%	\$0	\$285	\$285	0.4%	5.8%
Sociology	\$0	\$228	\$228	0.9%	3.6%	\$0	\$312	\$312	0.4%	4.9%
Other	\$0	\$2	\$2	0.0%	0.0%	\$1,883	\$1,983	\$3,866	5.5%	71.3%
Other Sciences (Total)	\$0	\$302	\$302	1.1%	6.2%	\$0	\$12	\$12	0.0%	0.2%
TOTAL, SCI & ENG FIELDS	\$7,134	\$16,747	\$23,881	89.3%	4.3%	\$28,998	\$28,437	\$57,435	81.6%	10.3%
FIELD	Federal	Non-Federal	UMD Total	% of UMD Total	% of Field	Federal	Non-Federal	UML Total	% of UML Total	% of Field
Education	\$187	\$1,482	\$1,669	6.2%	3.8%	\$1,373	\$1,661	\$3,034	4.3%	6.9%
Law	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Humanities	\$0	\$30	\$30	0.1%	0.6%	\$0	\$1,237	\$1,237	1.8%	24.3%
Visual and Performing Arts	\$0	\$14	\$14	0.1%	1.9%	\$0	\$540	\$540	0.8%	72.7%
Business and Management	\$0	\$287	\$287	1.1%	6.4%	\$158	\$861	\$1,019	1.4%	22.6%
Comm., Journalism & Library Sci	\$0	\$0	\$0	0.0%	0.0%	\$0	\$108	\$108	0.2%	22.1%
Social Work	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%
Other Non-Science and Engin.	\$0	\$863	\$863	3.2%	6.4%	\$530	\$6,481	\$7,011	10.0%	52.2%
TOTAL, NON-SCI & ENG FIELDS	\$187	\$2,676	\$2,863	10.7%	4.1%	\$2,061	\$10,888	\$12,949	18.4%	18.7%
TOTAL, SCI & ENG FIELDS	\$7,134	\$16,747	\$23,881	89.3%	4.3%	\$28,998	\$28,437	\$57,435	81.6%	10.3%
GRAND TOTAL	\$7,321	\$19,423	\$26,744	100.0%	4.3%	\$31,059	\$39,325	\$70,384	100.0%	11.2%

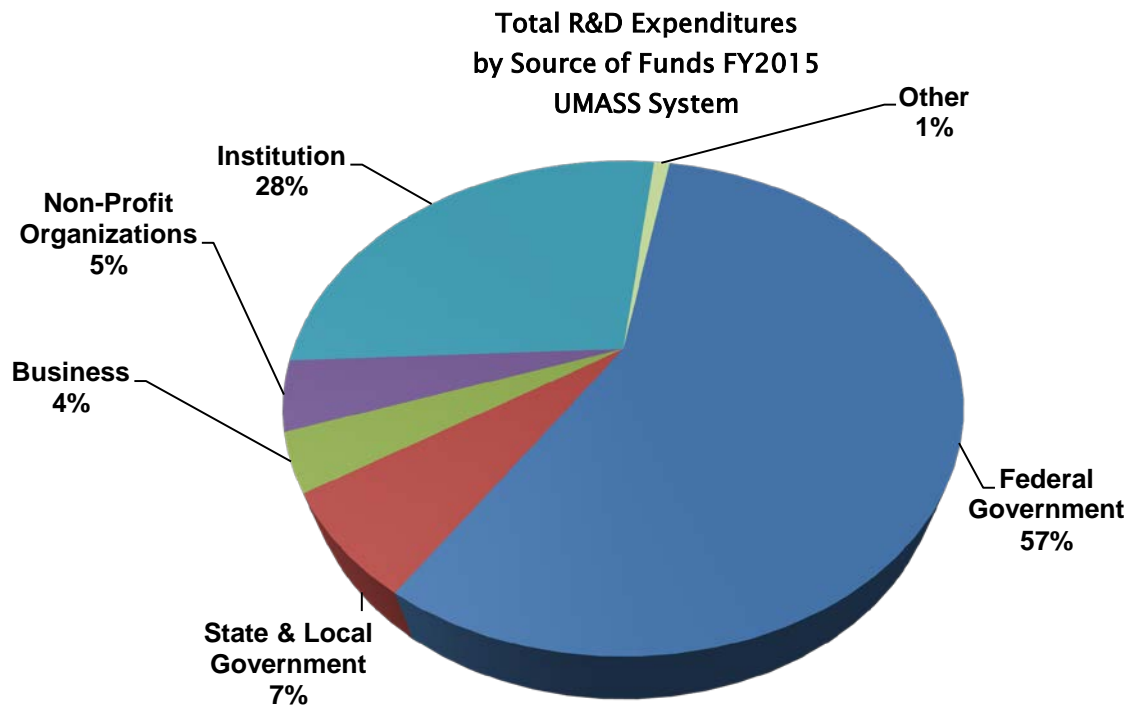
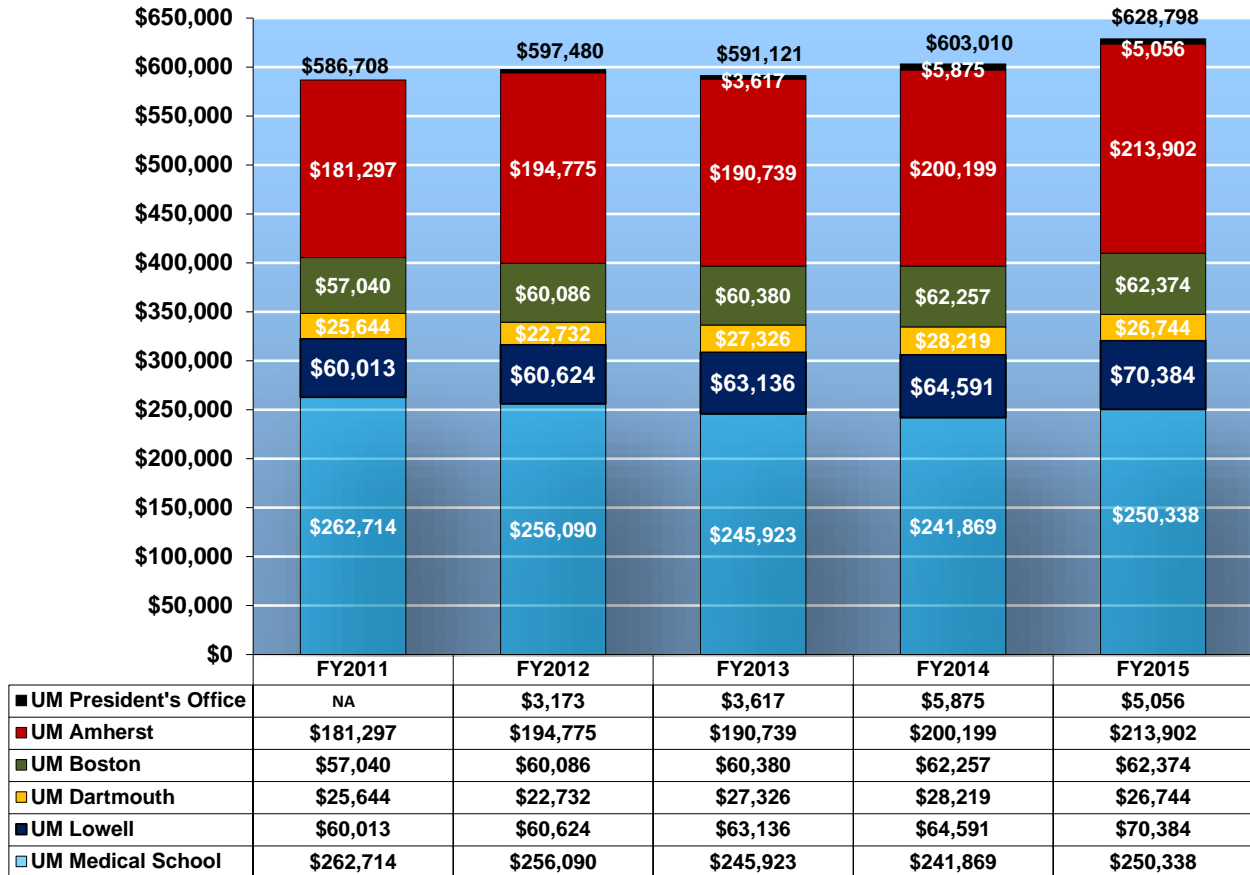
Source: Campus NSF HERD Surveys. All dollars are in thousands.
 Note: Percent of Total is the percent each field represents of total campus or system R&D expenditures in all fields.
 Percent of Field is the percent of the UMass system's expenditures in a particular field represented by that campus.

FY 2015 Total R&D Expenditures by Field (Federal and Non-Federal) – Cont'd

FIELD	UMMS					UMPO					UMass System			
	Federal	Non-Federal	UMMS Total	% of UMMS	% of Field	Federal	Non-Federal	UMPO Total	% of UMPO	% of Field	Federal	Non-Federal	System Total	% of System
Engineering (Total)	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$29,482	\$35,522	\$65,004	10.3%
Aeronautical & Astronomical	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$17	\$10	\$27	0.0%
Bioengineering/Biomedical	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$302	\$798	\$1,100	0.2%
Chemical	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$7,971	\$8,517	\$16,488	2.6%
Civil	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$5,912	\$8,899	\$14,811	2.4%
Electrical	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$9,726	\$10,025	\$19,751	3.1%
Mechanical	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$5,403	\$5,982	\$11,385	1.8%
Metallurgical & Materials	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$0	\$3	\$3	0.0%
Other	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$151	\$1,288	\$1,439	0.2%
Physical Sciences (Total)	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$32,440	\$18,690	\$51,130	8.1%
Astronomy	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$2,122	\$1,191	\$3,313	0.5%
Chemistry	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$13,066	\$9,694	\$22,760	3.6%
Physics	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$17,252	\$7,805	\$25,057	4.0%
Other	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%
Environmental Sciences (Total)	\$0	\$0	\$0	0.0%	0.0%	\$0	\$431	\$431	8.5%	2.1%	\$9,489	\$11,261	\$20,750	3.3%
Atmospheric	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%
Earth Sciences	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$3,221	\$1,997	\$5,218	0.8%
Oceanography	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$6,235	\$8,596	\$14,831	2.4%
Other	\$0	\$0	\$0	0.0%	0.0%	\$0	\$431	\$0	0.0%	0.0%	\$33	\$668	\$701	0.1%
Mathematical Sciences (Total)	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$2,047	\$1,801	\$3,848	0.6%
Computer Sciences (Total)	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$17,681	\$8,878	\$26,559	4.2%
Life Sciences (Total)	\$183,588	\$66,750	\$250,338	100.0%	70.0%	\$85	\$0	\$85	1.7%	0.0%	\$229,562	\$128,233	\$357,795	56.9%
Agricultural	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$14,224	\$10,815	\$25,039	4.0%
Biological	\$57,583	\$17,380	\$74,963	29.9%	73.4%	\$0	\$0	\$0	0.0%	0.0%	\$72,792	\$29,320	\$102,112	16.2%
Medical	\$76,173	\$31,890	\$108,063	43.2%	88.9%	\$0	\$0	\$0	0.0%	0.0%	\$81,519	\$40,080	\$121,599	19.3%
Other	\$49,832	\$17,480	\$67,312	26.9%	61.7%	\$85	\$0	\$85	2.4%	0.1%	\$61,027	\$48,018	\$109,045	17.3%
Psychology (Total)	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$5,687	\$5,925	\$11,612	1.8%
Social Sciences (Total)	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$4,712	\$13,390	\$18,102	2.9%
Economics	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$209	\$1,258	\$1,467	0.2%
Political Science	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$451	\$4,444	\$4,895	0.8%
Sociology	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$1,858	\$4,457	\$6,315	1.0%
Other	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$2,194	\$3,231	\$5,425	0.9%
Other Sciences (Total)	\$0	\$0	\$0	0.0%	0.0%	\$1	\$0	\$1	0.0%	0.0%	\$1,376	\$3,483	\$4,859	0.8%
TOTAL, SCI & ENG FIELDS	\$183,588	\$66,750	\$250,338	100.0%	44.7%	\$86	\$431	\$517	10.2%	0.1%	\$332,476	\$227,183	\$559,659	89.0%
FIELD	Federal	Non-Federal	UMW Total	% of UMW	% of Field	Federal	Non-Federal	UMPO Total	% of UMPO	% of Field	Federal	Non-Federal	UMass Total	% of Total
Education	\$0	\$0	\$0	0.0%	0.0%	\$1,298	\$1,236	\$2,534	50.1%	5.7%	\$20,750	\$23,355	\$44,105	7.0%
Law	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%
Humanities	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$120	\$4,962	\$5,082	0.8%
Visual and Performing Arts	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$6	\$737	\$743	0.1%
Business and Management	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$412	\$4,096	\$4,508	0.7%
Comm., Journalism & Library Sci	\$0	\$0	\$0	0.0%	0.0%	\$0	\$12	\$12	0.2%	2.5%	\$0	\$489	\$489	0.1%
Social Work	\$0	\$0	\$0	0.0%	0.0%	\$0	\$0	\$0	0.0%	0.0%	\$354	\$422	\$776	0.0%
Other Non-Science and Engin.	\$0	\$0	\$0	0.0%	0.0%	\$61	\$1,932	\$1,993	39.4%	14.8%	\$1,365	\$12,071	\$13,436	2.1%
TOTAL, NON-SCI & ENG FIELDS	\$0	\$0	\$0	0.0%	0.0%	\$1,359	\$3,180	\$4,539	89.8%	6.6%	\$23,007	\$46,132	\$69,139	11.0%
TOTAL, SCI & ENG FIELDS	\$183,588	\$66,750	\$250,338	100.0%	44.7%	\$86	\$431	\$517	10.2%	0.1%	\$332,476	\$227,183	\$559,659	89.0%
GRAND TOTAL	\$183,588	\$66,750	\$250,338	100.0%	39.8%	\$1,445	\$3,611	\$5,056	100.0%	0.8%	\$355,483	\$273,315	\$628,798	100.0%

Source: Campus NSF HERD Surveys. All dollars are in thousands.
 Note: Percent of Total is the percent each field represents of total campus or system R&D expenditures in all fields.
 Percent of Field is the percent of the UMass system's expenditures in a particular field represented by that campus.

Total R&D Expenditures UMASS System FY2011 – FY2015



Source: Campus NSF Surveys. All dollars are in thousands.

Total does not add to 100% due to rounding.

R&D Expenditures by Source

(Dollars in Thousands)

FY2011 - FY2015 Total R&D Expenditures									
	FY11	FY12	FY13	FY14	FY15	5-Year Change FY11-15		1-Year Change FY14-15	
						\$	%	\$	%
Amherst	\$181,297	\$194,775	\$190,739	\$200,199	\$213,902	\$32,605	18%	\$13,703	7%
Boston	\$57,040	\$60,086	\$60,380	\$61,186	\$62,374	\$5,334	9%	\$1,188	2%
Dartmouth	\$25,644	\$22,732	\$27,326	\$28,219	\$26,744	\$1,100	4%	-\$1,475	-5%
Lowell	\$60,013	\$60,624	\$63,136	\$64,591	\$70,384	\$10,371	17%	\$5,793	9%
Medical School	\$262,714	\$256,090	\$245,923	\$241,869	\$250,338	-\$12,376	-5%	\$8,469	4%
President's Office	NA	\$3,173	\$3,617	\$5,875	\$5,056	NA	NA	-\$819	-14%
System	\$586,708	\$594,307	\$591,121	\$603,010	\$628,798	\$42,090	7%	\$25,788	4%
FY2011 - FY2015 Federal Total R&D Expenditures									
	FY11	FY12	FY13	FY14	FY15	5-Year Change FY11-15		1-Year Change FY14-15	
						\$	%	\$	%
Amherst	\$107,683	\$115,280	\$111,448	\$110,189	\$103,417	-\$4,266	-4%	-\$6,772	-6%
Boston	\$26,958	\$33,275	\$24,924	\$27,715	\$28,653	\$1,695	6%	\$938	3%
Dartmouth	\$13,657	\$10,979	\$8,860	\$8,549	\$7,321	-\$6,336	-46%	-\$1,228	-14%
Lowell	\$27,960	\$26,786	\$27,360	\$28,654	\$31,059	\$3,099	11%	\$2,405	8%
Medical School	\$208,244	\$202,149	\$189,159	\$183,582	\$183,588	-\$24,656	-12%	\$6	0%
President's Office	NA	\$1,655	\$2,126	\$3,468	\$1,445	NA	NA	-\$2,023	-58%
System	\$384,502	\$390,124	\$363,877	\$362,908	\$355,483	-\$29,019	-8%	-\$7,425	-2%
FY2011 - FY2015 State & Local Total R&D Expenditures									
	FY11	FY12	FY13	FY14	FY15	5-Year Change FY11-15		1-Year Change FY14-15	
						\$	%	\$	%
Amherst	\$3,166	\$4,358	\$3,041	\$12,122	\$26,172	\$23,006	727%	\$14,050	116%
Boston	\$2,417	\$1,356	\$5,693	\$4,992	\$4,394	\$1,977	82%	-\$598	-12%
Dartmouth	\$821	\$1,313	\$1,462	\$1,742	\$1,327	\$506	62%	-\$415	-24%
Lowell	\$1,745	\$1,941	\$3,288	\$2,165	\$3,215	\$1,470	84%	\$1,050	48%
Medical School	\$1,290	\$1,101	\$804	\$564	\$4,615	\$3,325	258%	\$4,051	718%
President's Office	NA	\$647	\$556	\$1,333	\$2,071	NA	NA	\$738	55%
System	\$9,439	\$10,716	\$14,844	\$22,918	\$41,794	\$32,355	343%	\$18,876	82%

Source: Campus NSF HERD surveys. All dollars are in thousands.

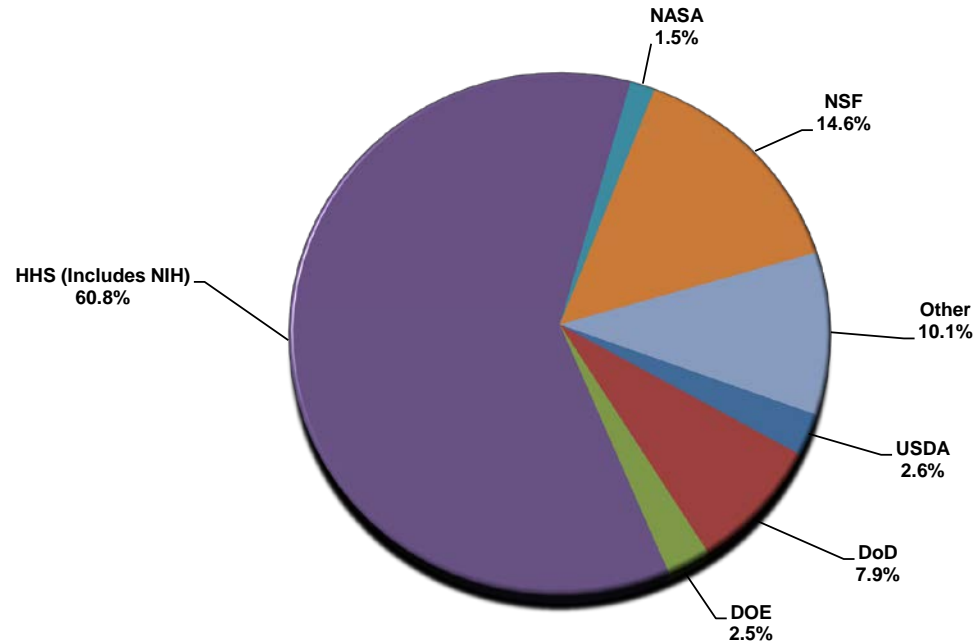
Note: UMB has revised its HERD figures for FY14.

R&D Expenditures by Source (Cont'd)

	FY2011- FY2015																			
	Industry-Sponsored Total R&D Expenditures																			
	FY11			FY12			FY13			FY14			FY15			5-Year Change FY11 - FY15		1-Year Change FY14 - FY15		
	Business	Non-Profits	Total	Business	Non-Profits	Total	Business	Non-Profits	Total	Business	Non-Profits	Total	Business	Non-Profits	Total	\$	%	\$	%	
Amherst	\$6,048	\$6,476	\$12,524	\$6,485	\$6,102	\$12,587	\$7,614	\$5,450	\$13,064	\$6,533	\$5,812	\$12,345	\$7,393	\$5,278	\$12,671	\$147	1.2%	\$326	3%	
Boston	\$188	\$4,933	\$5,121	\$160	\$2,670	\$2,830	\$97	\$3,219	\$3,316	\$721	\$2,867	\$3,588	\$1,499	\$2,991	\$4,490	-\$631	-12.3%	\$902	25%	
Dartmouth	\$503	\$301	\$804	\$519	\$334	\$853	\$425	\$208	\$633	\$180	\$274	\$454	\$365	\$201	\$566	-\$238	-29.6%	\$112	25%	
Lowell	\$3,726	\$2,426	\$6,152	\$3,914	\$2,983	\$6,897	\$4,303	\$1,115	\$5,418	\$3,921	\$1,569	\$5,490	\$4,634	\$1,568	\$6,202	\$50	0.8%	\$712	13%	
Medical School	\$11,747	\$15,747	\$27,494	\$9,749	\$14,278	\$24,027	\$8,795	\$14,948	\$23,743	\$6,925	\$16,349	\$23,274	\$9,452	\$17,609	\$27,061	-\$433	-1.6%	\$3,787	16%	
President's Office	NA	NA	NA	\$60	\$427	\$487	\$19	\$418	\$437	\$8	\$360	\$368	\$221	\$814	\$1,035	NA	NA	\$667	181%	
System	\$22,212	\$29,883	\$52,095	\$20,887	\$26,794	\$47,681	\$21,253	\$25,358	\$46,611	\$18,288	\$27,231	\$45,519	\$23,564	\$28,461	\$52,025	-\$70	1.2%	\$6,506	14%	
	FY2011 - FY2015										FY2011 - FY2015									
	Institutional Total R&D Expenditures										Other Total R&D Expenditures									
	FY11	FY12	FY13	FY14	FY15	5-Year Change FY11 - FY15		1-Year Change FY14-FY15		FY11	FY12	FY13	FY14	FY15	5-Year Change FY11 - FY15		1-Year Change FY14 - FY15			
						\$	%	\$	%						\$	%	\$	%		
Amherst	\$57,156	\$61,924	\$62,045	\$64,187	\$69,756	\$12,600	22.0%	\$5,569	8.7%	\$768	\$626	\$1,141	\$1,356	\$1,886	\$1,118	145.6%	\$530	39.1%		
Boston	\$22,350	\$22,569	\$25,830	\$17,130	\$24,456	\$2,106	9.4%	\$7,326	42.8%	\$194	\$56	\$617	\$311	\$381	\$187	96.4%	\$70	22.5%		
Dartmouth	\$10,123	\$9,371	\$16,280	\$17,432	\$17,446	\$7,323	72.3%	\$14	0.1%	\$239	\$216	\$91	\$42	\$84	-\$155	NA	\$42	100.0%		
Lowell	\$24,131	\$24,880	\$26,208	\$27,209	\$28,958	\$4,827	20.0%	\$1,749	6.4%	\$25	\$120	\$862	\$1,073	\$950	\$925	3700.0%	-\$123	-11.5%		
Medical School	\$25,686	\$28,813	\$31,516	\$31,750	\$32,641	\$6,955	27.1%	\$891	2.8%	\$0	\$0	\$701	\$2,699	\$2,433	\$2,433	NA	-\$266	-9.9%		
President's Office	NA	\$384	\$441	\$680	\$483	NA	NA	-\$197	-29.0%	NA	\$0	\$57	\$26	\$22	NA	NA	-\$4	-15.4%		
System	\$139,446	\$147,941	\$162,320	\$158,388	\$173,740	\$34,294	24.6%	\$7,582	9.7%	\$1,226	\$1,018	\$3,412	\$5,507	\$5,756	\$4,530	369.5%	\$249	4.5%		

Note: UMB has revised its HERD figures for FY14.

**Total R&D Expenditures
by Federal Government Agency Sources FY2015
UMASS System**



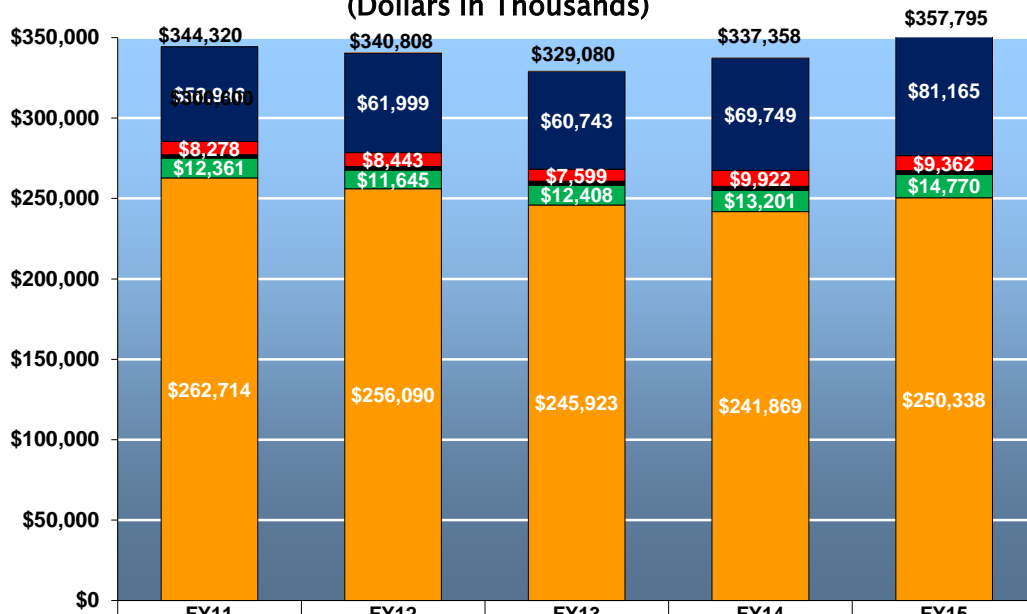
	Total Federal \$	USDA	% of Campus Total	DoD	% of Campus Total	DOE	% of Campus Total	HHS (includes NIH)	% of Campus Total	NASA	% of Campus Total	NSF	% of Campus Total	Other	% of Campus Total
Amherst	\$103,417	\$9,003	8.7%	\$11,323	10.9%	\$7,950	7.7%	\$21,187	20.5%	\$3,200	3.1%	\$36,529	35.3%	\$14,225	13.8%
Boston	\$28,653	\$17	0.1%	\$623	2.2%	\$349	1.2%	\$9,603	33.5%	\$1,103	3.8%	\$6,469	22.6%	\$10,489	36.6%
Dartmouth	\$7,321	\$117	1.6%	\$1,670	22.8%	\$6	0.1%	\$190	2.6%	\$175	2.4%	\$2,279	31.1%	\$2,884	39.4%
Lowell	\$31,059	\$0	0.0%	\$8,940	28.8%	\$738	2.4%	\$9,480	30.5%	\$997	3.2%	\$5,681	18.3%	\$5,223	16.8%
Medical School	\$183,588	\$0	0.0%	\$5,699	3.1%	\$0	0.0%	\$175,256	95.5%	\$0	0.0%	\$680	0.4%	\$1,953	1.1%
President's Office	\$1,445	\$0	0.0%	\$0	0.0%	\$0	0.0%	\$243	16.8%	\$0	0.0%	\$189	13.1%	\$1,013	70.1%
System	\$355,483	\$9,137	2.6%	\$28,255	7.9%	\$9,043	2.5%	\$215,959	60.8%	\$5,475	1.5%	\$51,827	14.6%	\$35,787	10.1%

Source: Campus NSF surveys. All dollars are in thousands.

Note: HHS includes NIH

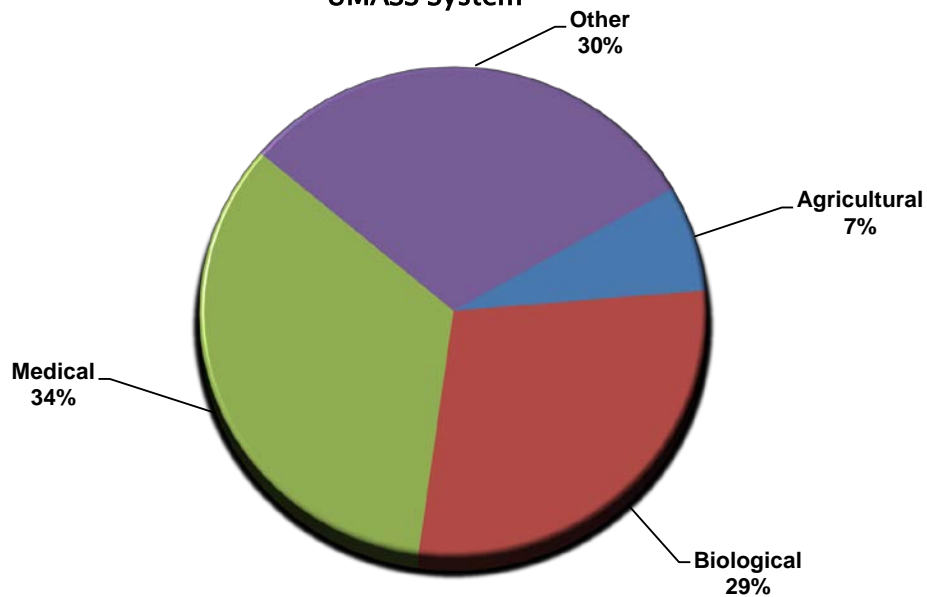
Life Sciences R&D Expenditures UMASS System FY2011 – FY2015

(Dollars in Thousands)



	FY11	FY12	FY13	FY14	FY15
President's Office	NA	\$402	\$94	\$135	\$85
Amherst	\$58,946	\$61,999	\$60,743	\$69,749	\$81,165
Boston	\$8,278	\$8,443	\$7,599	\$9,922	\$9,362
Dartmouth	\$2,021	\$2,229	\$2,313	\$2,482	\$2,075
Lowell	\$12,361	\$11,645	\$12,408	\$13,201	\$14,770
Medical School	\$262,714	\$256,090	\$245,923	\$241,869	\$250,338

Life Sciences R&D Expenditures by Field FY2015 UMASS System



Note: UMB figures for FY14 have been revised.

Source: Campus NSF surveys. All dollars are in thousands.

Life Sciences R&D Expenditures by Field
FY2011 – FY2015

(Dollars in Thousands)

	Total Life Sciences R&D									
	FY11	FY12	FY13	FY14	FY15	5-Year Change FY11 - FY15		1-Year Change FY14-FY15		
						\$	%	\$	%	
Amherst	\$58,946	\$61,999	\$60,743	\$69,749	\$81,165	\$22,219	38%	\$11,416	16%	
Boston	\$8,278	\$8,443	\$7,599	\$9,922	\$9,362	\$1,084	13%	-\$560	-6%	
Dartmouth	\$2,021	\$2,229	\$2,313	\$2,482	\$2,075	\$54	3%	-\$407	-16%	
Lowell	\$12,361	\$11,645	\$12,408	\$13,201	\$14,770	\$2,409	19%	\$1,569	12%	
Medical School	\$262,714	\$256,090	\$245,923	\$241,869	\$250,338	-\$12,376	-5%	\$8,469	4%	
President's Office		\$402	\$94	\$135	\$85	\$85	NA	-\$50	-37%	
System	\$344,320	\$340,808	\$329,080	\$337,358	\$357,795	\$13,475	4%	\$20,437	6%	

	Agricultural									
	FY11	FY12	FY13	FY14	FY15	5-Year Change FY11 - FY15		1-Year Change FY14-FY15		
						\$	%	\$	%	
Amherst	\$28,669	\$29,881	\$22,631	\$24,079	\$24,915	-\$3,754	-13%	\$836	3%	
Boston	\$0	\$0	\$0	\$0	\$124	\$124	NA	\$124	NA	
Dartmouth	\$946	\$1,170	\$809	\$202	\$0	-\$946	-100%	-\$202	-100%	
Lowell	\$0	\$0	\$0	\$0	\$0	\$0	NA	\$0	NA	
Medical School	\$0	\$0	\$0	\$0	\$0	\$0	NA	\$0	NA	
President's Office	\$0	\$0	\$0	\$0	\$0	NA	NA	\$0	NA	
System	\$29,615	\$31,051	\$23,440	\$24,281	\$25,039	-\$4,576	-15%	\$758	3%	

	Biological									
	FY11	FY12	FY13	FY14	FY15	5-Year Change FY11 - FY15		1-Year Change FY14-FY15		
						\$	%	\$	%	
Amherst	\$23,276	\$25,081	\$26,981	\$22,885	\$20,002	-\$3,274	-14%	-\$2,883	-13%	
Boston	\$2,581	\$2,773	\$2,592	\$2,913	\$3,305	\$724	28%	\$392	13%	
Dartmouth	\$1,004	\$938	\$1,503	\$2,219	\$1,946	\$942	94%	-\$273	-12%	
Lowell	\$1,553	\$1,999	\$1,470	\$1,837	\$1,896	\$343	22%	\$59	3%	
Medical School	\$88,359	\$91,140	\$77,287	\$80,169	\$74,963	-\$13,396	-15%	-\$5,206	-6%	
President's Office	NA	\$0	\$0	\$0	\$0	NA	NA	\$0	NA	
System	\$116,773	\$121,931	\$109,833	\$110,023	\$102,112	-\$14,661	-13%	-\$7,911	-7%	

**Life Sciences R&D Expenditures by Field
FY2011 – FY2015**

(Dollars in Thousands)

Medical									
	FY11	FY12	FY13	FY14	FY15	5-Year Change FY11 - FY15		1-Year Change FY14-FY15	
						\$	%	\$	%
						Amherst	\$6,473	\$6,276	\$9,661
Boston	\$4,675	\$4,345	\$812	\$2,294	\$1,358	-\$3,317	-71%	-\$936	-41%
Dartmouth	\$0	\$0	\$0	\$13	\$22	\$22	NA	\$9	NA
Lowell	\$252	\$0	\$47	\$113	\$125	-\$127	NA	\$12	11%
Medical School	\$133,598	\$127,032	\$121,754	\$107,810	\$108,063	-\$25,535	-19%	\$253	0%
President's Office	NA	\$263	\$44	\$75	\$0	NA	NA	-\$75	NA
System	\$144,998	\$137,916	\$132,318	\$124,186	\$121,599	-\$23,399	-16%	-\$2,587	-2%

Other									
	FY11	FY12	FY13	FY14	FY15	5-Year Change FY11 - FY15		1-Year Change FY14-FY15	
						\$	%	\$	%
						Amherst	\$528	\$761	\$1,470
Boston	\$1,022	\$1,325	\$4,195	\$4,715	\$4,575	\$3,553	348%	-\$140	-3%
Dartmouth	\$71	\$121	\$1	\$48	\$107	\$36	51%	\$59	123%
Lowell	\$10,556	\$9,646	\$10,891	\$11,251	\$12,749	\$2,193	21%	\$1,498	13%
Medical School	\$ 40,757	\$ 37,918	\$ 46,882	\$ 53,890	\$ 67,312	\$26,555	65%	\$13,422	25%
President's Office	NA	\$139	\$50	\$60	\$85	NA	NA	\$25	42%
System	\$52,934	\$49,910	\$63,489	\$78,868	\$109,045	\$56,111	106%	\$30,177	38%

Source: Campus NSF surveys and WebCASPAP. All dollars are in thousands.

Note: UMB FY2014 figures have been revised.

TECHNICAL NOTE

The *FY2015 Annual Research and Development Expenditures Report* presents information on the research and development expenditures for the University of Massachusetts System.

The NSF Survey Definition for Research and development (R&D) is “creative work conducted systematically to increase the stock of knowledge (research) and to use this stock of knowledge to devise new applications (development). R&D covers three activities defined below—basic research, applied research, and development.”

- Basic research is undertaken primarily to acquire new knowledge without any particular application or use in mind.
- Applied research is conducted to gain the knowledge or understanding to meet a specific, recognized need.
- Development is the systematic use of the knowledge or understanding gained from research directed toward the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes.

R&D Expenditures – (What to Include) - For purposes of the HERD survey, R&D includes expenditures for organized research as defined by 2 CFR 200 Appendix III and expenditures from funds designated for research.

R&D <i>includes</i> :	R&D does <i>not</i> include:
<ul style="list-style-type: none"> • Sponsored research (federal and nonfederal) • University research (institutional funds that are separately budgeted for individual R&D projects) • Startup, bridge, or seed funding provided to researchers within your institution • Other departmental funds designated for research • Recovered and unrecovered indirect costs (see definitions in Question 1) • Equipment purchased from R&D project accounts • R&D funds passed through to a sub-recipient organization, educational or other • Clinical trials, Phases I, II, or III (see definition in Question 5) • Research training grants funding work on organized research projects • Tuition remission provided to students working on research 	<ul style="list-style-type: none"> • Public service grants or outreach programs • Curriculum development (unless included as part of an overall research project) • R&D conducted by university faculty or staff at outside institutions that is not accounted for in your financial records • Estimates of the proportion of time budgeted for instruction that is spent on research • Capital projects (i.e., construction or renovation of research facilities) • Non-research training grants • Unrecovered indirect costs that exceed your institution’s federally negotiated Facilities and Administrative (F&A) rate

Source: FY 2015 HERD Survey

Additional highlights as well as rankings and comparative data can be found in the expanded version of this report (to be released shortly). Please contact us at the University of Massachusetts President’s Office, Office of Institutional Research, if you would like to obtain a hard copy.

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