

UNIVERSITY OF MASSACHUSETTS ANNUAL RESEARCH AND DEVELOPMENT EXPENDITURES REPORT

FY2007

*UNIVERSITY OF MASSACHUSETTS PRESIDENTS OFFICE
OFFICE OF INSTITUTIONAL RESEARCH
OCTOBER 2008*

The *FY 2007 Annual Research and Development Expenditures* Report presents information on the research and development expenditures for the University of Massachusetts System. It is based on data that our five campuses provide to the National Science Foundation (NSF) through its annual Survey of Research and Development Expenditures at Universities and Colleges. In addition to the FY2007 data, this report also provides trend data in many cases.

FY2007 Major Highlights:

- **UMASS Total R&D Expenditures** - Total FY2007 R&D expenditures for the University of Massachusetts System was reported at \$397 million, which represents a 7.8% increase from the FY2006 total of \$369 million.
- **UMASS R&D Expenditures in Science and Engineering** - An estimated \$379 million (95.4%) of our R&D expenditures are in the sciences and engineering (S&E).
- **UMASS State Ranking in Science and Engineering R&D Expenditures** - Among Massachusetts colleges and universities, UMass ranks 3rd in S&E expenditures. UMass, MIT, Harvard and BU together account for 79% of the academic science and engineering R&D expenditures in the state. (Rankings based on FY 2006 data).
- **UMASS R&D Expenditures by Funding Source** - In terms of funding sources for Science and Engineering research, 64% is from the federal government, 20% is from institutional sources, 3% is from state and local government, 7% is from industry and 6% is from other sources (e.g., private foundations).
- **UMASS Areas of Funding Growth** – Between the reporting cycles FY2006-07, industry sponsorship increased 28.9%, institutional funding increased 20.7%, other funding increased 8.1%, and federal funding increased 0.5% from the prior year.
- **Life Sciences Comprise More Than Half of all R&D Expenditures at UMASS** - At \$220 million, life sciences constitute more than half of UMass’ total R&D expenditures (55.3%). The distribution of R&D expenditures by field is:

Life Sciences	55.3%	Social Sciences	3.8%
Physical Sciences	8.7%	Non Sciences/Engineering	4.6%
Engineering	12.7%	Psychology	2.5%
Computer Sciences	5.3%	Mathematical Sciences	1.1%
Environmental Sciences	5.2%	Other Sciences	0.9%

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.

Please Note: Following the implementation system-wide of ERP research administration software in 2007, significant improvements have been made to the methodology used to gather, analyze, and report the FY 2007 R&D Expenditures data. Although variations at the aggregate level are not overly significant, there might be a slight impact of possible methodological inconsistencies for trended data at the sub-category levels. Comparison to data from prior years should be made with this awareness, as campuses are currently in the process of reviewing their methodology.

Barbara Velardi
Research Associate

Neena Verma
Director of Institutional Research

TOTAL R&D EXPENDITURES

- **FY2003 - FY2007**
 - UMASS SYSTEM *1*
 - UMASS AMHERST *2*
 - UMASS BOSTON *3*
 - UMASS DARTMOUTH *4*
 - UMASS LOWELL *5*
 - UMASS WORCESTER *6*
- **TOTAL R&D EXPENDITURES BY FIELD FY2007** *7*

SCIENCE & ENGINEERING R&D EXPENDITURES

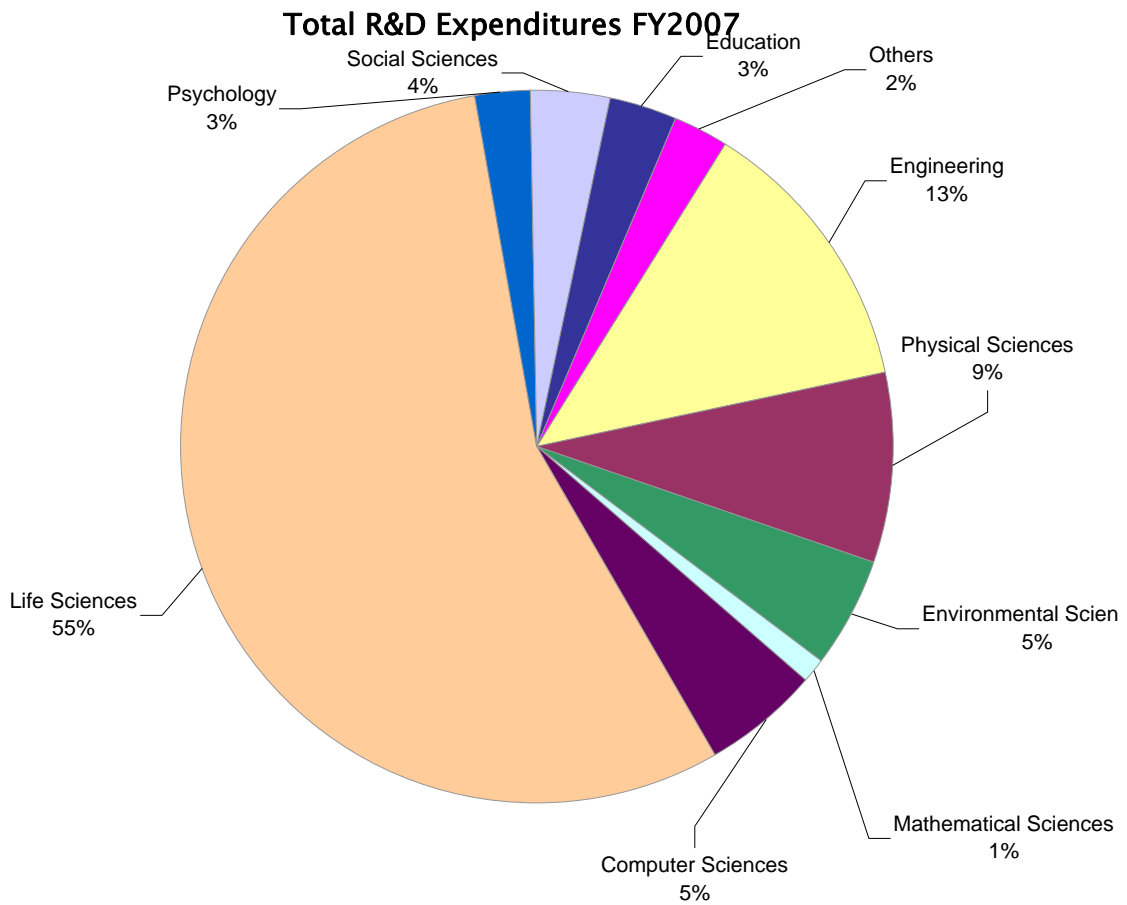
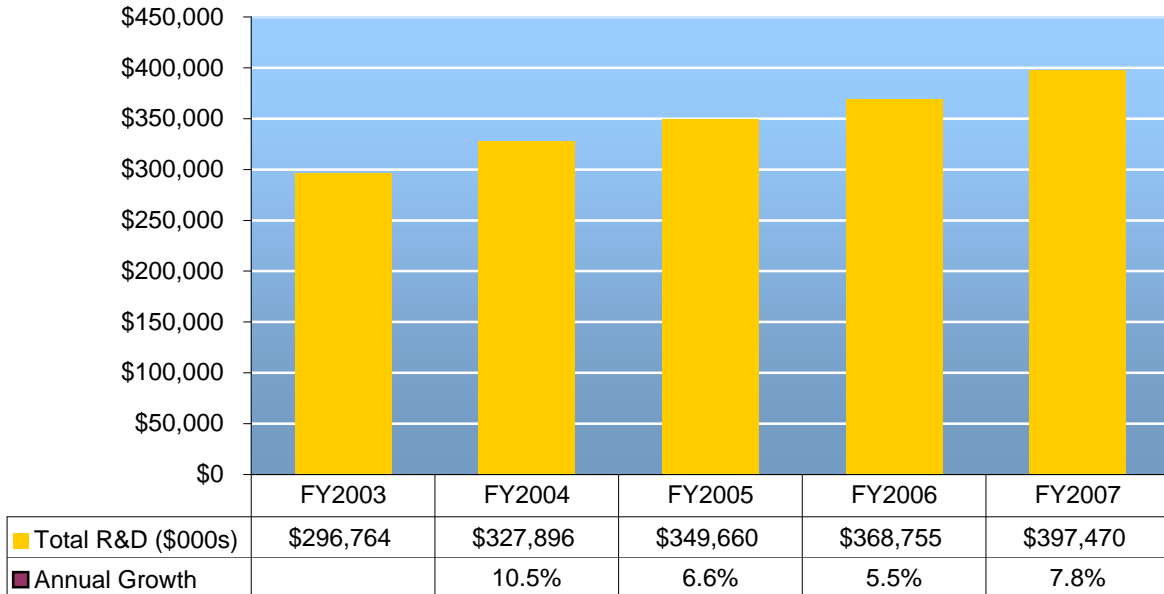
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- **FEDERAL GOVERNMENT AGENCY SOURCES FY2007** *13*

LIFE SCIENCES R&D EXPENDITURES

- **FY2003 - FY2007** *14*
- **EXPENDITURES BY FIELD FY2007** *14*
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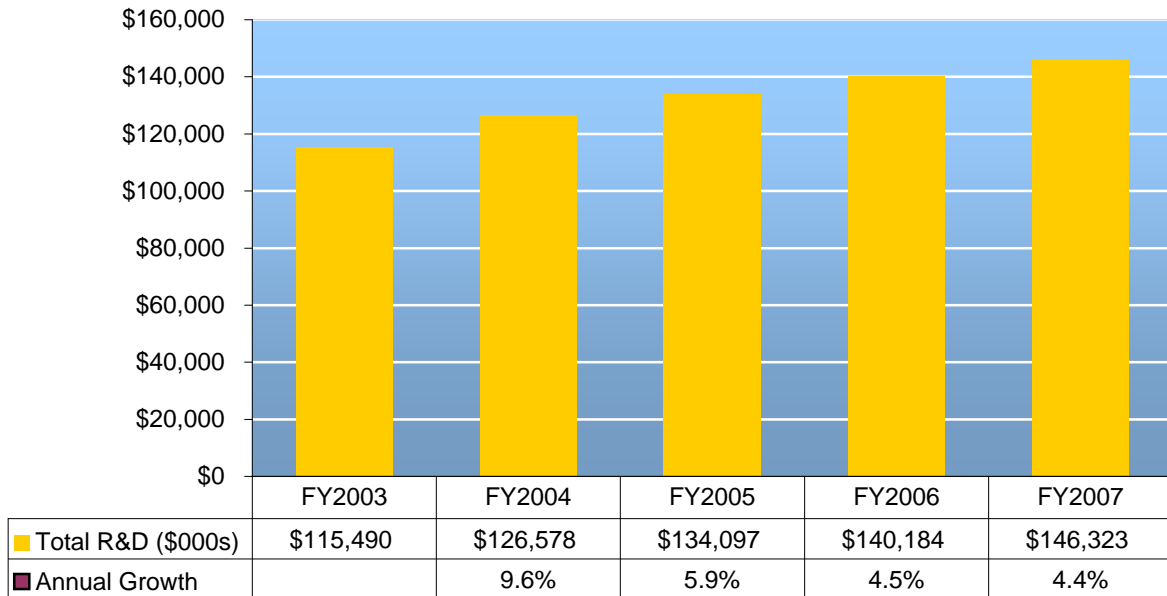
UMASS System

Total R&D Expenditures FY2003 – FY2007

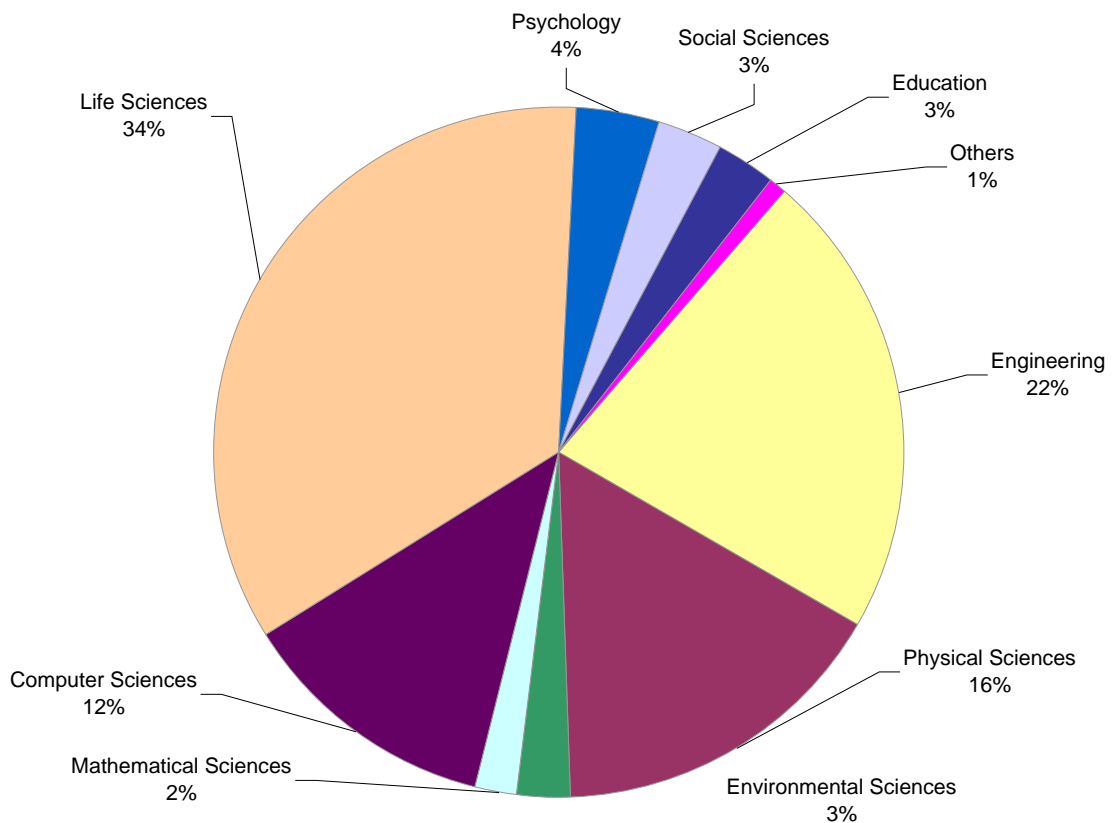


Amherst

Total R&D Expenditures FY2003 – FY2007

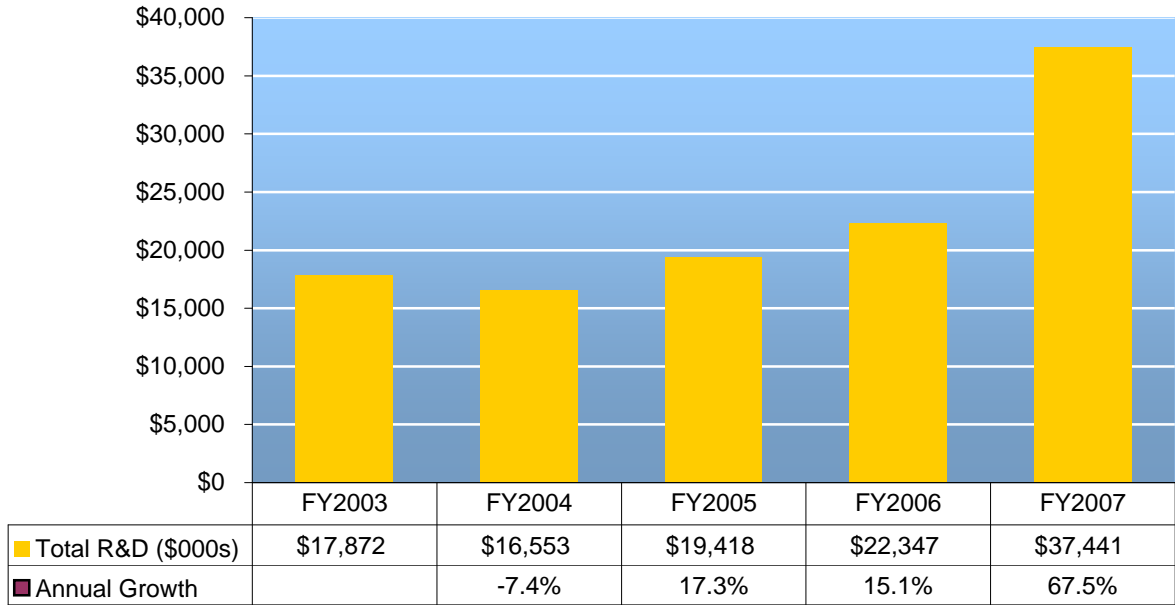


Total R&D Expenditures FY2007

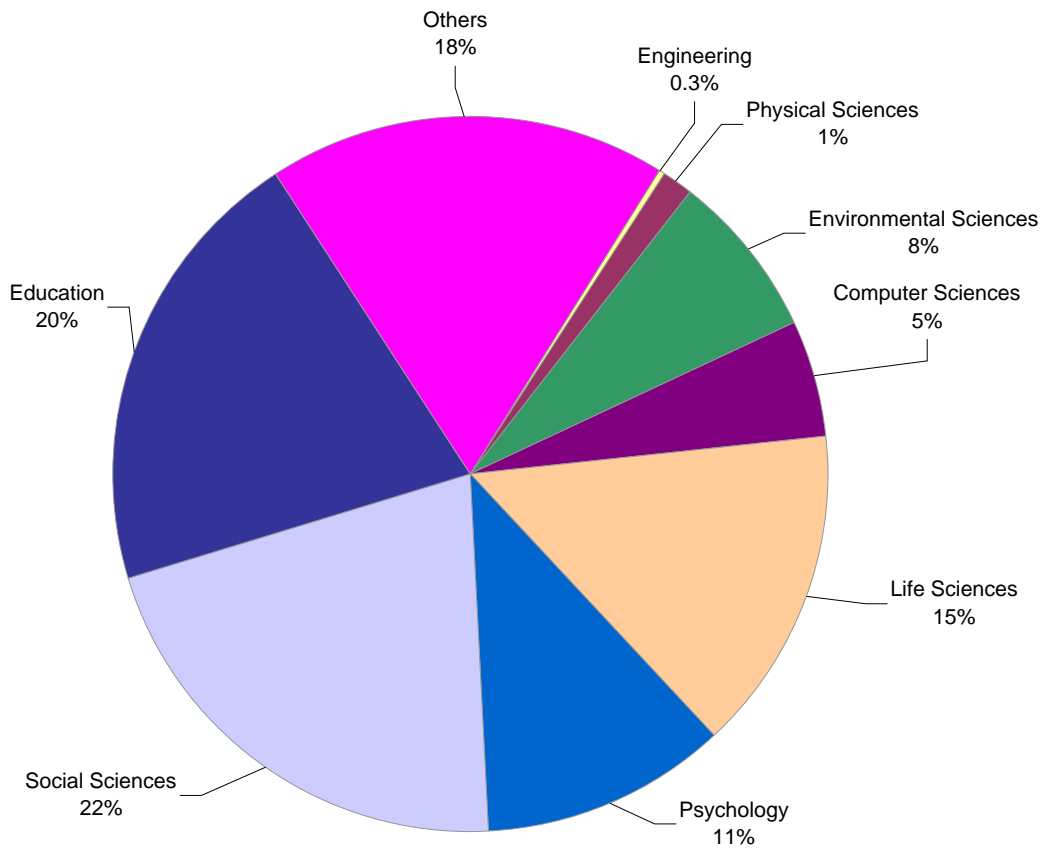


Boston

Total R&D Expenditures FY2003 – FY2007

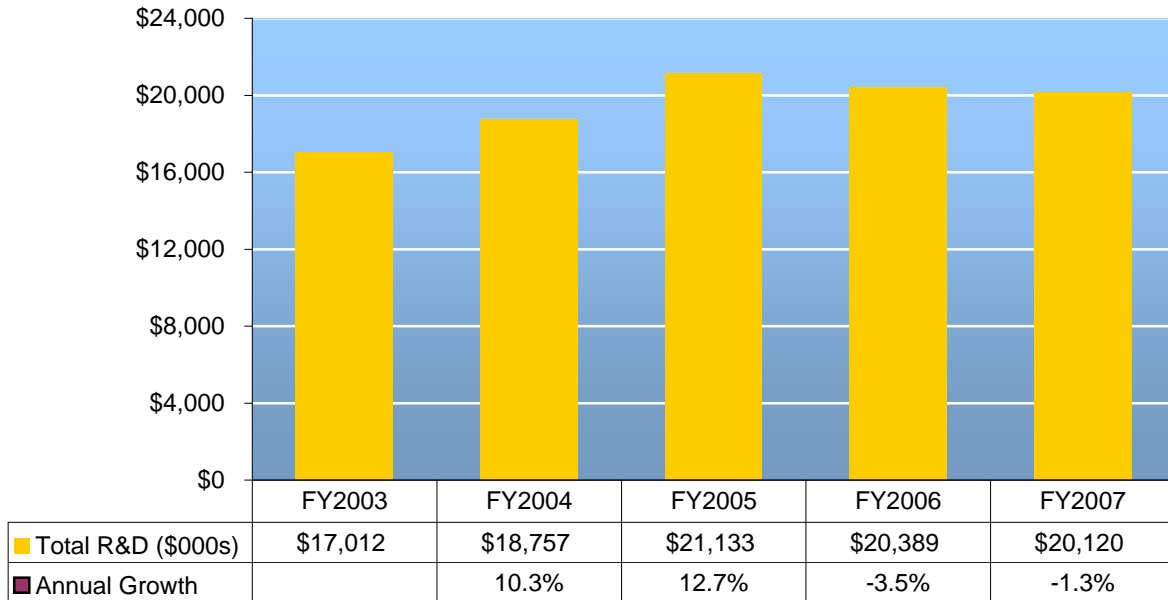


Total R&D Expenditures FY2007

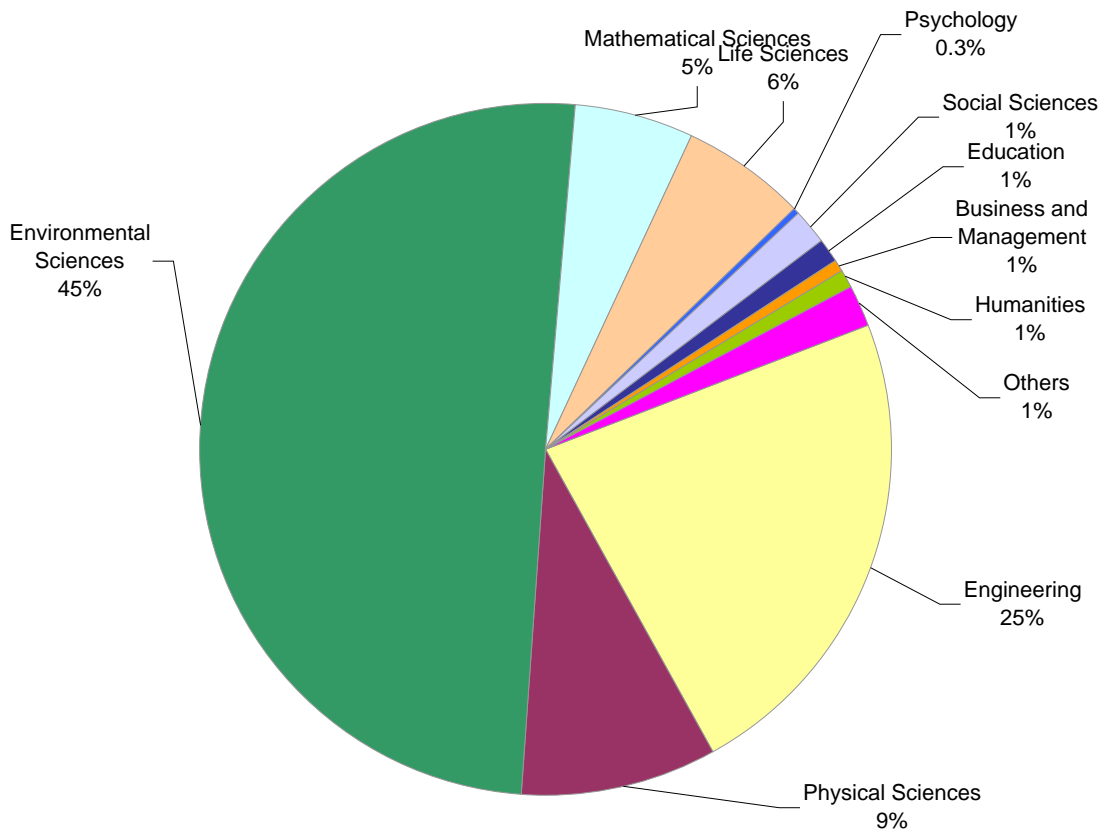


Dartmouth

Total R&D Expenditures FY2003 – FY2007

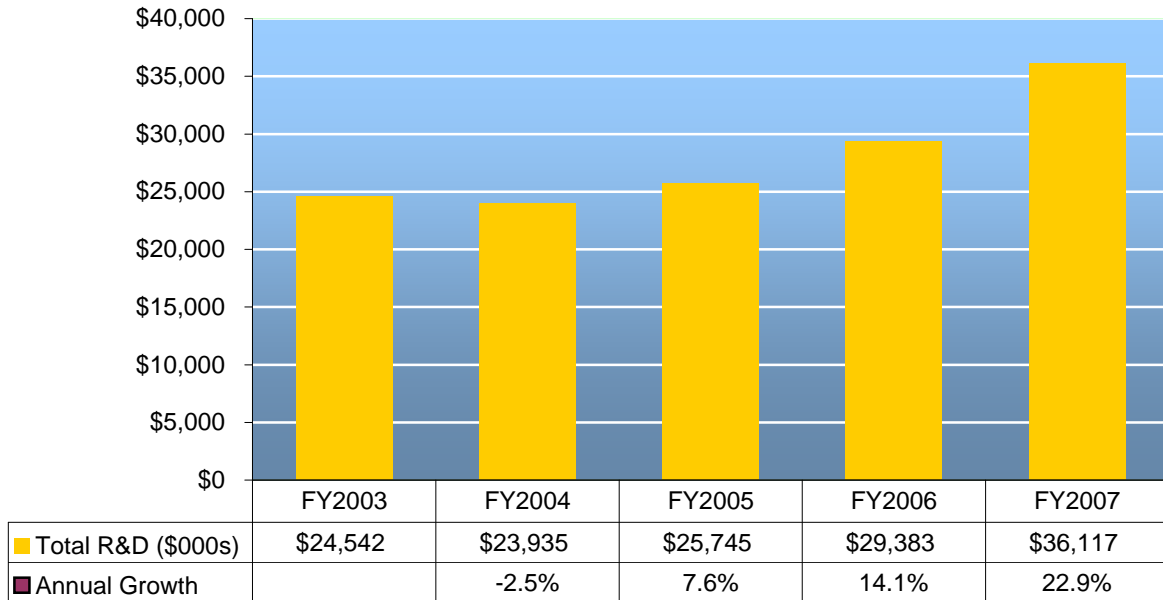


Total R&D Expenditures FY2007

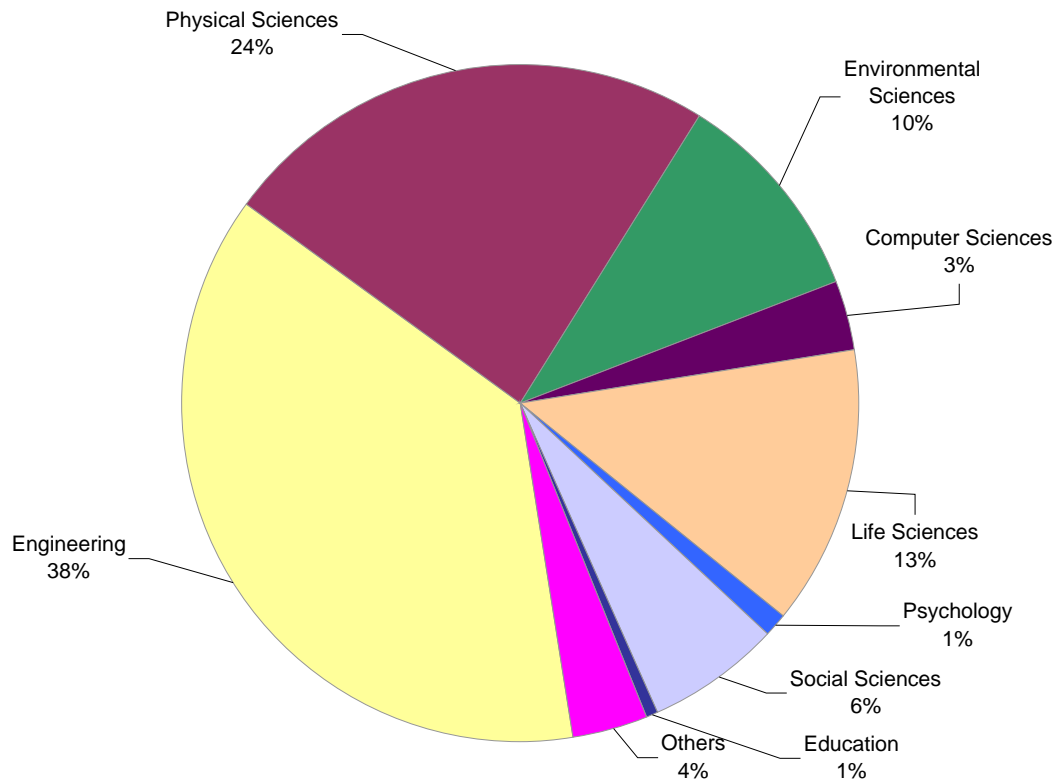


Lowell

Total R&D Expenditures FY2003 – FY2007

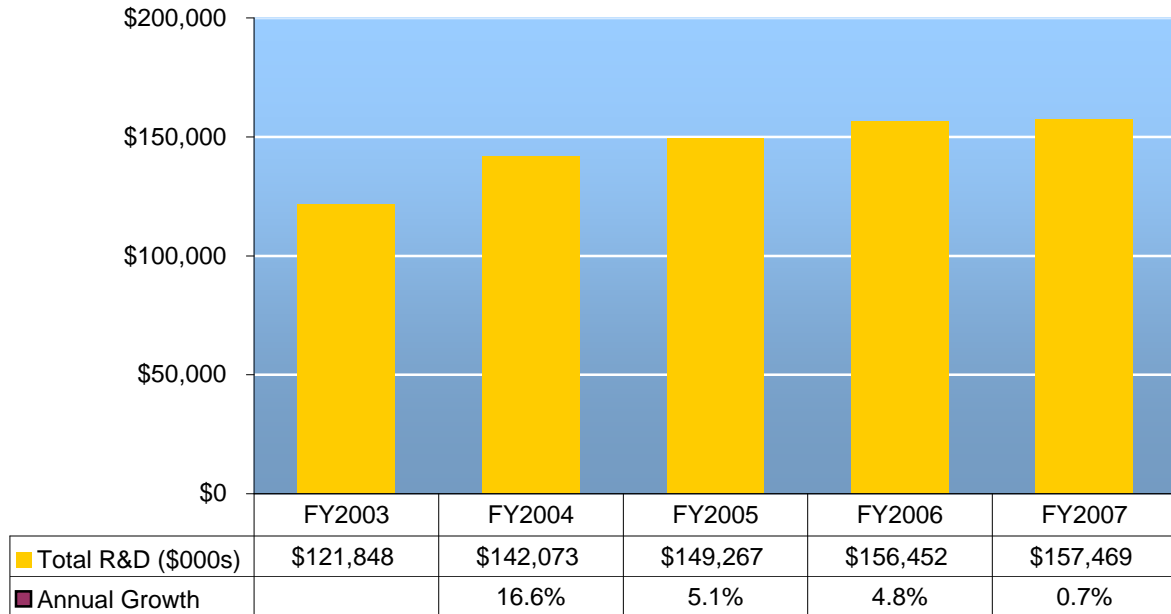


Total R&D Expenditures FY2007



Worcester

Total R&D Expenditures FY2003 – FY2007



All of Worcester's R&D expenditures are in the life sciences.

Total R&D Expenditures By Field FY2007

FIELD	UMA FY2007	% of UMA Total	% of Field	UMB FY2007	% of UMB Total	% of Field	UMD FY2007	% of UMD Total	% of Field	UML FY2007	% of UML Total	% of Field	UMW FY2007	% of UMW Total	% of Field	System FY2007	% of Total
Engineering (Total)	\$ 32,033	21.9%	63.7%	\$ 97	0.3%	0.2%	\$ 4,608	22.9%	9.2%	\$ 13,556	37.5%	27.0%	\$ -			\$ 50,294	12.7%
Aeronautical & Astronomical	\$ -			\$ -			\$ 10	0.0%	100.0%	\$ -			\$ -			\$ 10	0.0%
Bioengineering/Biomedical	\$ -			\$ -			\$ 6	0.0%	100.0%	\$ -			\$ -			\$ 6	0.0%
Chemical	\$ 4,352	3.0%	91.1%	\$ -			\$ -			\$ 425	1.2%	8.9%	\$ -			\$ 4,777	1.2%
Civil	\$ 7,835	5.4%	87.2%	\$ -			\$ 503	2.5%	5.6%	\$ 651	1.8%	7.2%	\$ -			\$ 8,989	2.3%
Electrical	\$ 13,141	9.0%	86.2%	\$ 97	0.3%	0.6%	\$ 356	1.8%	2.3%	\$ 1,655	4.6%	10.9%	\$ -			\$ 15,249	3.8%
Mechanical	\$ 6,007	4.1%	64.5%	\$ -			\$ 531	2.6%	5.7%	\$ 2,779	7.7%	29.8%	\$ -			\$ 9,317	2.3%
Metallurgical & Materials	\$ -			\$ -			\$ 1,229	6.1%	37.1%	\$ 2,082	5.8%	62.9%	\$ -			\$ 3,311	0.8%
Other	\$ 698	0.5%	8.1%	\$ -			\$ 1,973	9.8%	22.8%	\$ 5,964	16.5%	69.1%	\$ -			\$ 8,635	2.2%
Physical Sciences (Total)	\$ 23,506	16.1%	68.1%	\$ 524	1.4%	1.5%	\$ 1,822	9.1%	5.3%	\$ 8,665	24.0%	25.1%	\$ -			\$ 34,517	8.7%
Astronomy	\$ 3,622	2.5%	100.0%	\$ -			\$ -			\$ -			\$ -			\$ 3,622	0.9%
Chemistry	\$ 15,673	10.7%	85.0%	\$ 280	0.7%	1.5%	\$ 1,211	6.0%	6.6%	\$ 1,280	3.5%	6.9%	\$ -			\$ 18,444	4.6%
Physics	\$ 3,920	2.7%	32.2%	\$ 244	0.7%	2.0%	\$ 611	3.0%	5.0%	\$ 7,385	20.4%	60.7%	\$ -			\$ 12,160	3.1%
Other	\$ 291	0.2%	100.0%	\$ -			\$ -			\$ -			\$ -			\$ 291	0.1%
Environmental Sciences (Total)	\$ 3,956	2.7%	19.2%	\$ 2,839	7.6%	13.8%	\$ 10,116	50.3%	49.1%	\$ 3,691	10.2%	17.9%	\$ -			\$ 20,602	5.2%
Atmospheric	\$ -			\$ -			\$ -			\$ -			\$ -			\$ -	
Earth Sciences	\$ 3,790	2.6%	47.7%	\$ 467	1.2%	5.9%	\$ -			\$ 3,691	10.2%	46.4%	\$ -			\$ 7,948	2.0%
Oceanography	\$ 166	0.1%	1.4%	\$ 1,483	4.0%	12.6%	\$ 10,116	50.3%	86.0%	\$ -			\$ -			\$ 11,765	3.0%
Other	\$ -			\$ 889	2.4%	100.0%	\$ -			\$ -			\$ -			\$ 889	0.2%
Mathematical Sciences (Total)	\$ 2,869	2.0%	68.2%	\$ 19	0.1%	0.5%	\$ 1,088	5.4%	25.9%	\$ 232	0.6%	5.5%	\$ -			\$ 4,208	1.1%
Computer Sciences (Total)	\$ 17,660	12.1%	83.6%	\$ 1,952	5.2%	9.2%	\$ 323	1.6%	1.5%	\$ 1,177	3.3%	5.6%	\$ -			\$ 21,112	5.3%
Life Sciences (Total)	\$ 50,796	34.7%	23.1%	\$ 5,517	14.7%	2.5%	\$ 1,228	6.1%	0.6%	\$ 4,814	13.3%	2.2%	\$ 157,469	100.0%	71.6%	\$ 219,824	55.3%
Agricultural	\$ 20,795	14.2%	96.6%	\$ -			\$ 739	3.7%	3.4%	\$ -			\$ -			\$ 21,534	5.4%
Biological	\$ 21,206	14.5%	25.9%	\$ 2,345	6.3%	2.9%	\$ 465	2.3%	0.6%	\$ 1,378	3.8%	1.7%	\$ 56,562	35.9%	69.0%	\$ 81,956	20.6%
Medical	\$ 5,401	3.7%	5.9%	\$ 2,984	8.0%		\$ -			\$ -			\$ 82,470	52.4%	90.8%	\$ 90,855	22.9%
Other	\$ 3,394	2.3%	13.3%	\$ 188	0.5%	0.7%	\$ 24	0.1%	0.1%	\$ 3,436	9.5%	13.49%	\$ 18,437	11.7%	72.4%	\$ 25,479	6.4%
Psychology (Total)	\$ 5,560	3.8%	54.9%	\$ 4,132	11.0%	40.8%	\$ 52	0.3%	0.5%	\$ 386	1.1%	3.8%	\$ -			\$ 10,130	2.5%
Social Sciences (Total)	\$ 4,608	3.1%	30.4%	\$ 7,956	21.2%	52.5%	\$ 301	1.5%	2.0%	\$ 2,303	6.4%	15.2%	\$ -			\$ 15,168	3.8%
Economics	\$ 1,551	1.1%	61.5%	\$ 729	1.9%	28.9%	\$ 120	0.6%	4.8%	\$ 124	0.3%	4.9%	\$ -			\$ 2,524	0.6%
Political Science	\$ 350	0.2%	22.5%	\$ 1,020	2.7%	65.5%	\$ 150	0.7%	9.6%	\$ 37	0.1%	2.4%	\$ -			\$ 1,557	0.4%
Sociology	\$ 1,383	0.9%	82.0%	\$ 273	0.7%	16.2%	\$ 31	0.2%	1.8%	\$ -			\$ -			\$ 1,687	0.4%
Other	\$ 1,324	0.9%	14.1%	\$ 5,934	15.8%	63.1%	\$ -			\$ 2,142	5.9%	22.8%	\$ -			\$ 9,400	2.4%
Other Sciences (Total)	\$ 550	0.4%	15.9%	\$ 2,916	7.8%	84.1%	\$ -			\$ -			\$ -			\$ 3,466	0.9%
TOTAL, SCI & ENG FIELDS	\$ 141,538	96.7%	37.3%	\$ 25,952	69.3%	6.8%	\$ 19,538	97.1%	5.2%	\$ 34,824	96.4%	9.2%	\$ 157,469	100.0%	41.5%	\$ 379,321	95.4%

Total R&D Expenditures By Field FY2007

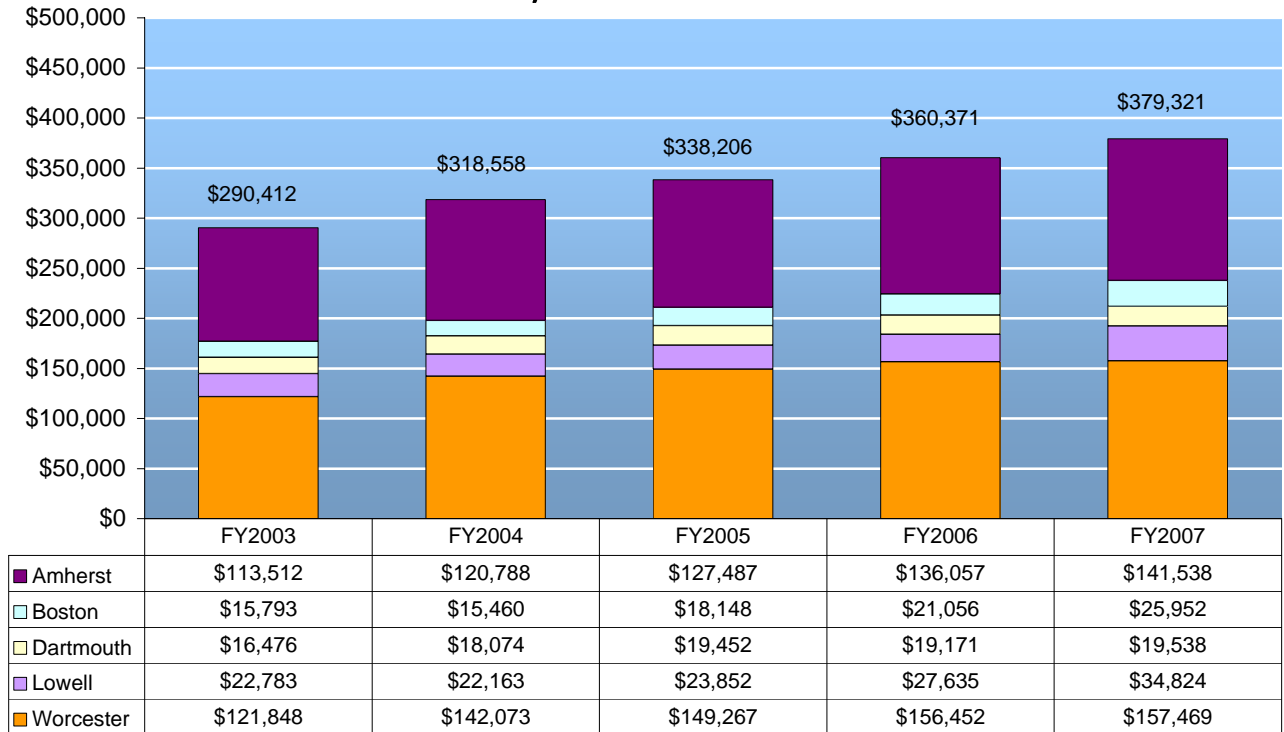
FIELD	UMA FY2007	% of UMA Total	% of Field	UMB FY2007	% of UMB Total	% of Field	UMD FY2007	% of UMD Total	% of Field	UML FY2007	% of UML Total	% of Field	UMW FY2007	% of UMW Total	% of Field	System FY2007	% of Total
Education	\$ 4,057	2.8%	33.3%	\$ 7,646	20.4%	62.8%	\$ 237	1.2%	1.9%	\$ 237	0.7%	1.9%	\$ -			\$ 12,177	3.1%
Law	\$ 37	0.0%	12.1%	\$ 46	0.1%	15.1%	\$ -			\$ 222	0.6%	72.8%	\$ -			\$ 305	0.1%
Humanities	\$ 329	0.2%	34.9%	\$ 428	1.1%	45.4%	\$ 185	0.9%	19.6%	\$ -			\$ -			\$ 942	0.2%
Visual and Performing Arts	\$ 30	0.0%	25.6%	\$ 80	0.2%	68.4%	\$ 2	0.0%	1.7%	\$ 5	0.01%	4.3%	\$ -			\$ 117	0.03%
Business and Management	\$ 332	0.2%	39.0%	\$ 299	0.8%	35.1%	\$ 108	0.5%	12.7%	\$ 113	0.3%	13.3%	\$ -			\$ 852	0.2%
Comm., Journalism & Library Sci	\$ -			\$ 50	0.1%	100.0%	\$ -			\$ -			\$ -			\$ 50	0.0%
Social Work	\$ -			\$ -			\$ -			\$ -			\$ -			\$ -	
Other Non-Science and Engin.	\$ -			\$ 2,940	7.9%	79.3%	\$ 50	0.2%	1.3%	\$ 716	2.0%	19.3%	\$ -			\$ 3,706	0.9%
TOTAL, NON-SCI & ENG FIELDS	\$ 4,785	3.3%	26.4%	\$ 11,489	30.7%	63.3%	\$ 582	2.9%	3.2%	\$ 1,293	3.6%	7.1%	\$ -			\$ 18,149	4.6%
TOTAL, SCI & ENG FIELDS	\$ 141,538	96.7%	37.3%	\$ 25,952	69.3%	6.8%	\$ 19,538	97.1%	5.2%	\$ 34,824	96.4%	9.2%	\$ 157,469	100.0%	41.5%	\$ 379,321	95.4%
GRAND TOTAL	\$ 146,323		36.8%	\$ 37,441		9.4%	\$ 20,120		5.1%	\$ 36,117		9.1%	\$ 157,469		39.6%	\$ 397,470	100.0%

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

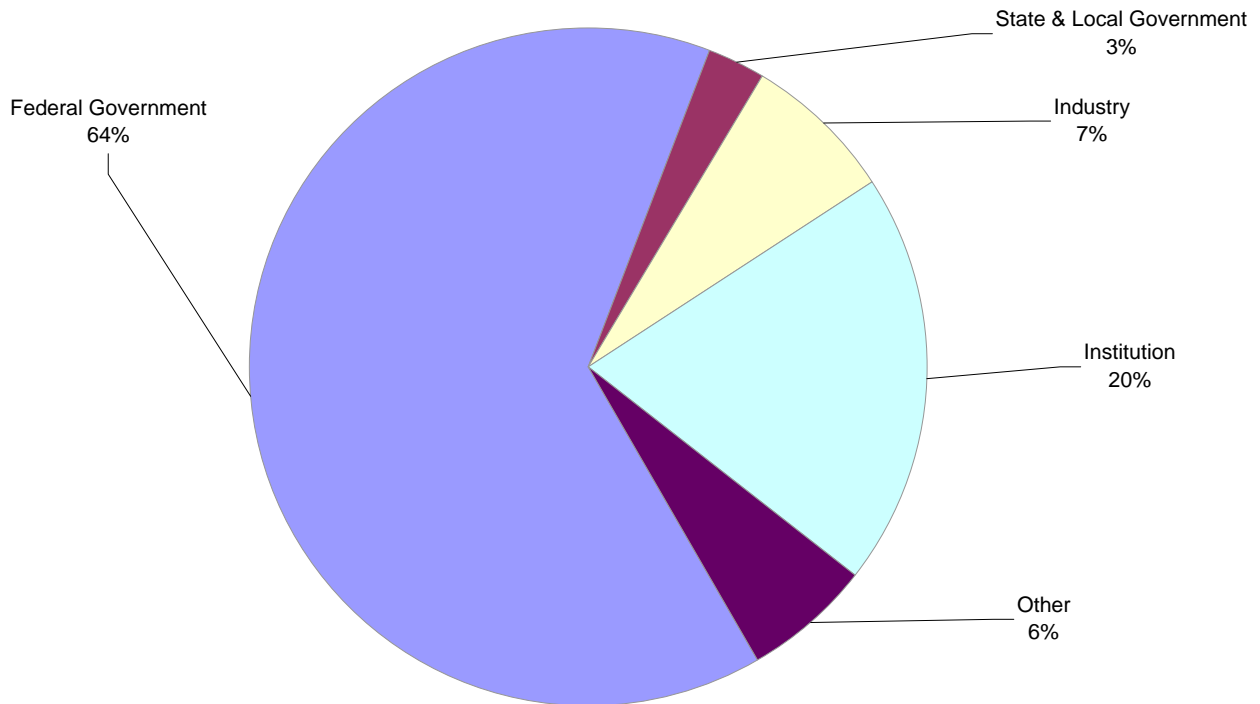
Note: % of Total is the percentage each field represents of total campus or system R&D expenditures in all fields.

% of Field is the percentage of the UMass system's expenditures in a particular field represented by that campus.

Science and Engineering R&D Expenditures UMASS System FY2003 – FY2007



Science and Engineering R&D Expenditures by Source of Funds FY2007 UMASS System



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

**Science and Engineering R&D Expenditures by Source
FY2003 – FY2007**

	Total R&D Expenditures								
	FY03	FY04	FY05	FY06	FY07	5-Year Change FY03 - FY07		1-Year Change FY06 - FY07	
						\$	%	\$	%
Amherst	\$113,512	\$120,788	\$127,487	\$136,057	\$141,538	\$28,026	24.7%	\$5,481	4.0%
Boston	\$15,793	\$15,460	\$18,148	\$21,056	\$25,952	\$10,159	64.3%	\$4,896	23.3%
Dartmouth	\$16,476	\$18,074	\$19,452	\$19,171	\$19,538	\$3,062	18.6%	\$367	1.9%
Lowell	\$22,783	\$22,163	\$23,852	\$27,635	\$34,824	\$12,041	52.9%	\$7,189	26.0%
Worcester	\$121,848	\$142,073	\$149,267	\$156,452	\$157,469	\$35,621	29.2%	\$1,017	0.7%
System	\$290,412	\$318,558	\$338,206	\$360,371	\$379,321	\$88,909	30.6%	\$18,950	5.3%

	Federal R&D Expenditures								
	FY03	FY04	FY05	FY06	FY07	5-Year Change FY03 - FY07		1-Year Change FY06 - FY07	
						\$	%	\$	%
Amherst	\$60,845	\$65,452	\$66,921	\$69,642	\$71,984	\$11,139	18.3%	\$2,342	3.4%
Boston	\$5,579	\$5,412	\$6,326	\$8,610	\$9,152	\$3,573	64.0%	\$542	6.3%
Dartmouth	\$8,718	\$9,199	\$9,852	\$9,515	\$11,456	\$2,738	31.4%	\$1,941	20.4%
Lowell	\$15,821	\$16,655	\$17,608	\$18,741	\$20,045	\$4,224	26.7%	\$1,304	7.0%
Worcester	\$109,082	\$126,162	\$130,680	\$136,141	\$131,226	\$22,144	20.3%	-\$4,915	-3.6%
System	\$200,045	\$222,880	\$231,387	\$242,649	\$243,863	\$43,818	21.9%	\$1,214	0.5%

	State & Local Government R&D Expenditures								
	FY03	FY04	FY05	FY06	FY07	5-Year Change FY03 - FY07		1-Year Change FY06 - FY07	
						\$	%	\$	%
Amherst	\$3,842	\$3,597	\$3,873	\$5,684	\$5,638	\$1,796	46.7%	-\$46	-0.8%
Boston	\$1,291	\$1,001	\$2,481	\$1,662	\$1,207	-\$84	-6.5%	-\$455	-27.4%
Dartmouth	\$4,228	\$4,027	\$5,039	\$5,069	\$2,210	-\$2,018	-47.7%	-\$2,859	-56.4%
Lowell	\$677	\$380	\$180	\$601	\$969	\$292	43.1%	\$368	61.2%
Worcester	\$1	\$2	\$139	\$35	\$0	-\$1	-100.0%	-\$35	-100.0%
System	\$10,039	\$9,007	\$11,712	\$13,051	\$10,024	-\$15	-0.1%	-\$3,027	-23.2%

**Science and Engineering R&D Expenditures by Source
FY2003 – FY2007**

	Industry-Sponsored R&D Expenditures								
	FY03	FY04	FY05	FY06	FY07	5-Year Change FY03 - FY07		1-Year Change FY06 - FY07	
						\$	%	\$	%
Amherst	\$3,838	\$4,914	\$4,724	\$5,934	\$5,195	\$1,357	35.4%	-\$739	-12.5%
Boston	\$0	\$0	\$0	\$0	\$275	\$275		\$275	
Dartmouth	\$0	\$753	\$1,252	\$1,680	\$762	\$762		-\$918	-54.6%
Lowell	\$4,920	\$3,904	\$4,755	\$4,423	\$5,222	\$302	6.1%	\$799	18.1%
Worcester	\$4,397	\$5,903	\$8,018	\$9,465	\$16,266	\$11,869	269.9%	\$6,801	71.9%
System	\$13,155	\$15,474	\$18,749	\$21,502	\$27,720	\$14,565	110.7%	\$6,218	28.9%

	Institutional R&D Expenditures								
	FY03	FY04	FY05	FY06	FY07	5-Year Change FY03 - FY07		1-Year Change FY06 - FY07	
						\$	%	\$	%
Amherst	\$36,490	\$38,932	\$42,887	\$45,773	\$48,808	\$12,318	33.8%	\$3,035	6.6%
Boston	\$5,815	\$5,861	\$6,731	\$7,007	\$11,122	\$5,307	91.3%	\$4,115	58.7%
Dartmouth	\$2,585	\$4,092	\$3,305	\$2,907	\$4,855	\$2,270	87.8%	\$1,948	67.0%
Lowell	\$1,365	\$1,224	\$1,309	\$3,870	\$8,588	\$7,223	529.2%	\$4,718	121.9%
Worcester	\$0	\$1,106	\$1,583	\$2,377	\$1,385	\$1,385		-\$992	-41.7%
System	\$46,255	\$51,215	\$55,815	\$61,934	\$74,758	\$28,503	61.6%	\$12,824	20.7%

	Other R&D Expenditures								
	FY03	FY04	FY05	FY06	FY07	5-Year Change FY03 - FY07		1-Year Change FY06 - FY07	
						\$	%	\$	%
Amherst	\$8,503	\$7,893	\$9,082	\$9,024	\$9,913	\$1,410	16.6%	\$889	9.9%
Boston	\$3,108	\$3,186	\$2,610	\$3,777	\$4,196	\$1,088	35.0%	\$419	11.1%
Dartmouth	\$945	\$3	\$4	\$0	\$255	-\$690	-73.0%	\$255	100.0%
Lowell	\$0	\$0	\$0	\$0	\$0	\$0		\$0	
Worcester	\$8,368	\$8,900	\$8,847	\$8,434	\$8,592	\$224	2.7%	\$158	1.9%
System	\$20,924	\$19,982	\$20,543	\$21,235	\$22,956	\$2,032	9.7%	\$1,721	8.1%

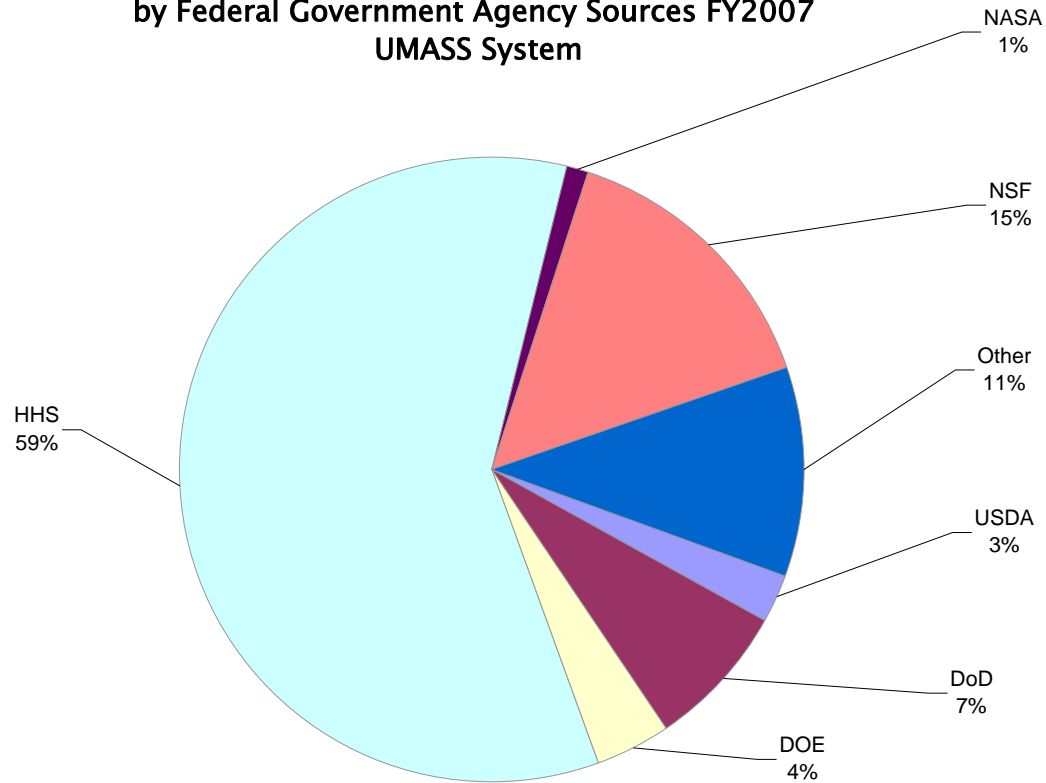
Source: Campus NSF surveys. All dollars are in thousands.

Science and Engineering R&D Expenditures
Percent Basic Research FY2007

FY07 Basic Research as a % of:		
	Federal R&D	Total R&D
Amherst	70%	70%
Boston	100%	100%
Dartmouth	90%	75%
Lowell	78%	76%
Worcester	59%	50%

Source: Campus NSF surveys.

**Science and Engineering R&D Expenditures
by Federal Government Agency Sources FY2007
UMASS System**

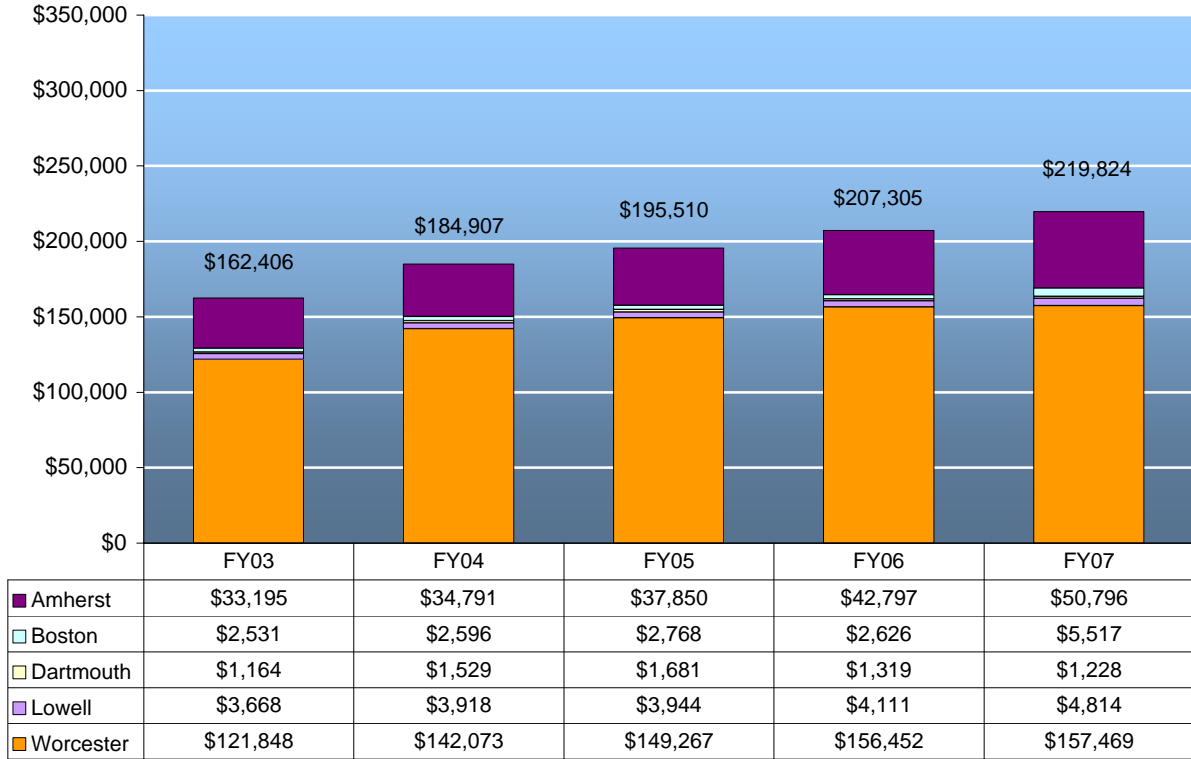


	Total Federal \$	USDA	% of Campus Total	DoD	% of Campus Total	DOE	% of Campus Total	HHS	% of Campus Total	NASA	% of Campus Total	NSF	% of Campus Total	Other	% of Campus Total
Amherst	\$ 71,984	\$ 5,469	7.6%	\$ 6,723	9.3%	\$ 7,707	10.7%	\$ 17,425	24.2%	\$ 2,690	3.7%	\$ 27,274	37.9%	\$ 4,696	6.5%
Boston	\$ 9,151	\$ -	0.0%	\$ 283	3.1%	\$ 1,469	16.1%	\$ 2,667	29.1%	\$ -	0.0%	\$ 2,801	30.6%	\$ 1,931	21.1%
Dartmouth	\$ 11,456	\$ 745	6.5%	\$ 1,278	11.2%	\$ -	0.0%	\$ 233	2.0%	\$ 106	0.9%	\$ 2,199	19.2%	\$ 6,895	60.2%
Lowell	\$ 20,045	\$ -	0.0%	\$ 8,539	42.6%	\$ 687	3.4%	\$ 5,030	25.1%	\$ 494	2.5%	\$ 3,181	15.9%	\$ 2,114	10.5%
Worcester	\$ 131,226	\$ -	0.0%	\$ 1,012	0.8%	\$ 192	0.1%	\$ 119,103	90.8%	\$ -	0.0%	\$ 361	0.3%	\$ 10,558	8.0%
System	\$ 243,862	\$ 6,214	2.5%	\$ 17,835	7.3%	\$ 10,055	4.1%	\$ 144,458	59.2%	\$ 3,290	1.3%	\$ 35,816	14.7%	\$ 26,194	10.7%

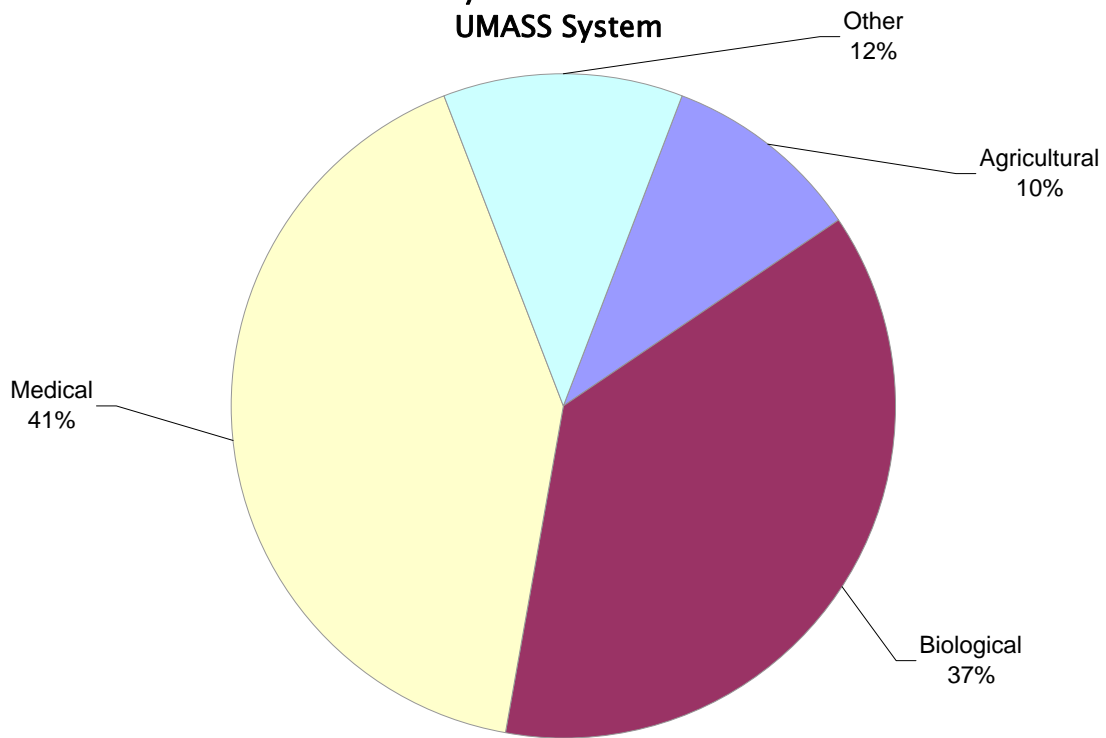
Source: Campus NSF surveys. All dollars are in thousands.

Note: HHS includes NIH

Life Sciences R&D Expenditures UMASS System FY2003 – FY2007



Life Sciences R&D Expenditures by Field FY2007 UMASS System



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

**Life Sciences R&D Expenditures by Field
FY2003 – FY2007**

	Life Sciences R&D Expenditures								
	FY03	FY04	FY05	FY06	FY07	5-Year Change FY03 - FY07		1-Year Change FY06 - FY07	
						\$	%	\$	%
Amherst	\$33,195	\$34,791	\$37,850	\$42,797	\$50,796	\$17,601	53.0%	\$7,999	18.7%
Boston	\$2,531	\$2,596	\$2,768	\$2,626	\$5,517	\$2,986	118.0%	\$2,891	110.1%
Dartmouth	\$1,164	\$1,529	\$1,681	\$1,319	\$1,228	\$64	5.5%	-\$91	-6.9%
Lowell	\$3,668	\$3,918	\$3,944	\$4,111	\$4,814	\$1,146	31.2%	\$703	17.1%
Worcester	\$121,848	\$142,073	\$149,267	\$156,452	\$157,469	\$35,621	29.2%	\$1,017	0.7%
System	\$162,406	\$184,907	\$195,510	\$207,305	\$219,824	\$57,418	35.4%	\$12,519	6.0%

	Agricultural								
	FY03	FY04	FY05	FY06	FY07	5-Year Change FY03 - FY07		1-Year Change FY06 - FY07	
						\$	%	\$	%
Amherst	\$10,762	\$15,321	\$17,017	\$19,183	\$20,795	\$10,033	93.2%	\$1,612	8.4%
Boston	\$0	\$0	\$0	\$0	\$0	\$0		\$0	
Dartmouth	\$617	\$1,064	\$1,180	\$744	\$739	\$122	19.8%	-\$5	-0.7%
Lowell	\$0	\$0	\$0	\$0	\$0	\$0		\$0	
Worcester	\$0	\$0	\$0	\$0	\$0	\$0		\$0	
System	\$11,379	\$16,385	\$18,197	\$19,927	\$21,534	\$10,155	89.2%	\$1,607	8.1%

	Biological								
	FY03	FY04	FY05	FY06	FY07	5-Year Change FY03 - FY07		1-Year Change FY06 - FY07	
						\$	%	\$	%
Amherst	\$20,073	\$16,148	\$16,309	\$17,996	\$21,206	\$1,133	5.6%	\$3,210	17.8%
Boston	\$1,350	\$1,485	\$1,417	\$1,439	\$2,345	\$995	73.7%	\$906	63.0%
Dartmouth	\$258	\$169	\$190	\$263	\$465	\$207	80.2%	\$202	76.8%
Lowell	\$970	\$1,200	\$1,036	\$885	\$1,378	\$408	42.1%	\$493	55.7%
Worcester	\$50,968	\$57,951	\$58,543	\$61,571	\$56,562	\$5,594	11.0%	-\$5,009	-8.1%
System	\$73,619	\$76,953	\$77,495	\$82,154	\$81,956	\$8,337	11.3%	-\$198	-0.2%

**Life Sciences R&D Expenditures by Field
FY2003 – FY2007**

	Medical								
	FY03	FY04	FY05	FY06	FY07	5-Year Change FY03 - FY07		1-Year Change FY06 - FY07	
						\$	%	\$	%
Amherst	\$884	\$1,062	\$1,804	\$3,191	\$5,401	\$4,517	511.0%	\$2,210	69.3%
Boston	\$0	\$0	\$0	\$0	\$2,984	\$2,984		\$2,984	
Dartmouth	\$0	\$0	\$0	\$0	\$0	\$0		\$0	
Lowell	\$2,681	\$2,715	\$2,886	\$0	\$0	-\$2,681	-100.0%	\$0	
Worcester	\$53,078	\$65,176	\$69,314	\$76,250	\$82,470	\$29,392	55.4%	\$6,220	8.2%
System	\$56,643	\$68,953	\$74,004	\$79,441	\$90,855	\$34,212	60.4%	\$11,414	14.4%

	Other Life Sciences								
	FY03	FY04	FY05	FY06	FY07	5-Year Change FY03 - FY07		1-Year Change FY06 - FY07	
						\$	%	\$	%
Amherst	\$1,476	\$2,260	\$2,720	\$2,427	\$3,394	\$1,918	129.9%	\$967	39.8%
Boston	\$1,181	\$1,111	\$1,351	\$1,187	\$188	-\$993	-84.1%	-\$999	-84.2%
Dartmouth	\$289	\$296	\$311	\$312	\$24	-\$265	-91.7%	-\$288	-92.3%
Lowell	\$17	\$3	\$22	\$3,226	\$3,436	\$3,419	20111.8%	\$210	6.5%
Worcester	\$17,802	\$18,946	\$21,410	\$18,631	\$18,437	\$635	3.6%	-\$194	-1.0%
System	\$20,765	\$22,616	\$25,814	\$25,783	\$25,479	\$4,714	22.7%	-\$304	-1.2%

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