

**UNIVERSITY OF MASSACHUSETTS  
ANNUAL R&D EXPENDITURES  
FY2006**

*OFFICE OF THE PRESIDENT  
INSTITUTIONAL RESEARCH  
SEPTEMBER 2007*

The *FY2006 Annual R&D Expenditures* report presents information on the research and development expenditures at 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 FY2006 data, this report also provides trend data in many cases. Selected NSF rankings of R&D expenditures by fields are available from Institutional Research.

**FY2006 highlights:**

- Total FY2006 R&D spending was \$404 million, which represents a 7.2% increase from the FY2005 total of \$377 million.
- \$396 million (98%) of our R&D expenditures are in the sciences and engineering (S&E). Among Massachusetts colleges and universities, UMass ranks 3<sup>rd</sup> in S&E expenditures. UMass, MIT, Harvard and BU together account for 81% of the academic science and engineering R&D expenditures in the state.
- In terms of funding sources for S&E research, 62% is from the federal government, 16% is from institutional sources, 12% is from state and local government, 5% is from industry and 5% is from other sources (e.g., private foundations).
- All areas of funding showed growth - industry sponsorship increased 15%, institutional funding grew by 11%, state/local government funding 24%, and federal funding 5%.
- At \$243 million, life sciences constitute 60% of UMass' total R&D expenditures. The distribution of R&D expenditures by field is:

life sciences	60%	social sciences	4%
physical sciences	10%	non sciences/engineering	2%
engineering	10%	psychology	2%
computer sciences	5%	mathematical sciences	1%
environmental sciences	5%	other sciences	1%

- Within life sciences, biological sciences constitute more than a third (35%) of the expenditures, medical sciences another third (34%), and agricultural and other sciences the remaining 31%.

Barbara Velardi  
Research Associate

Shu-Ling Chen  
Director of Institutional Research

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**LIFE SCIENCES R&D EXPENDITURES**

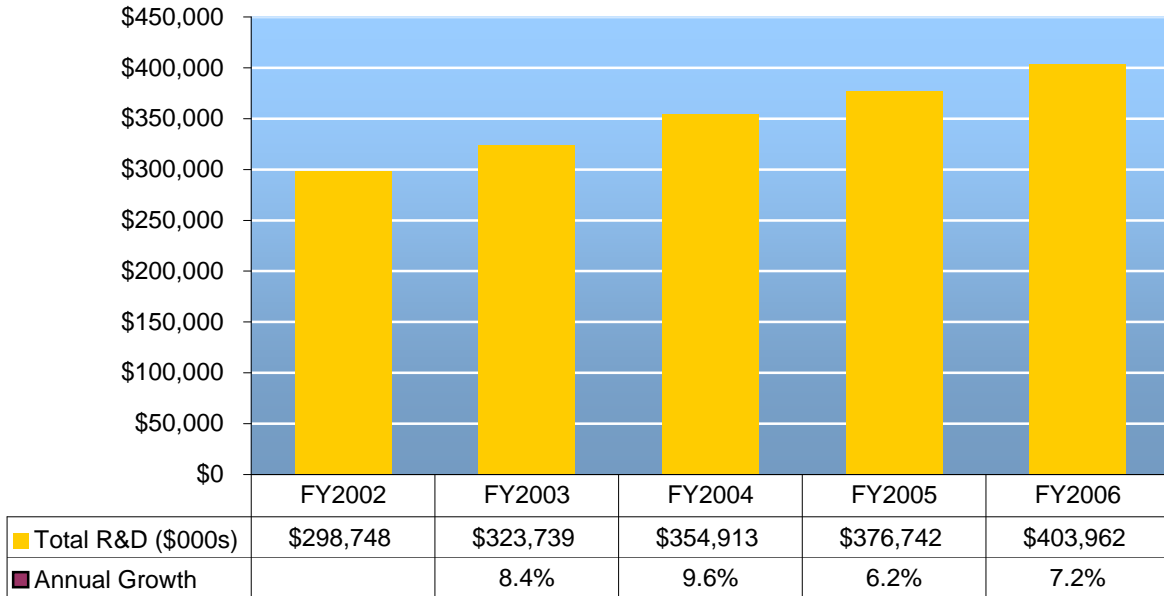
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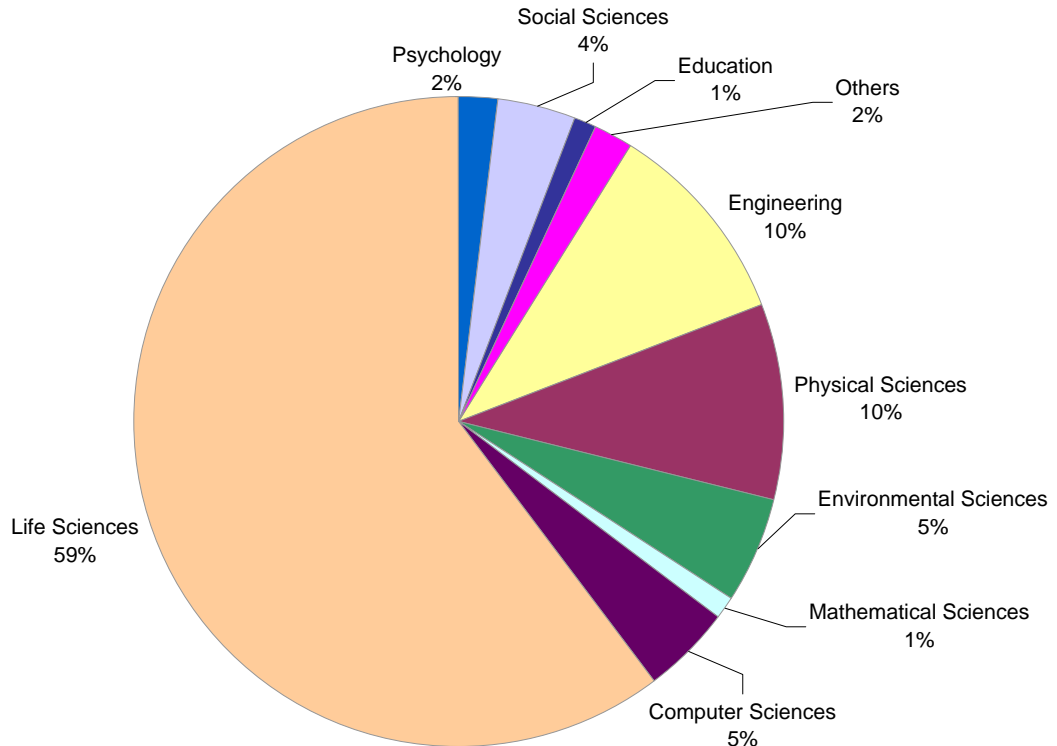
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# UMASS System

## Total R&D Expenditures FY2002 – FY2006

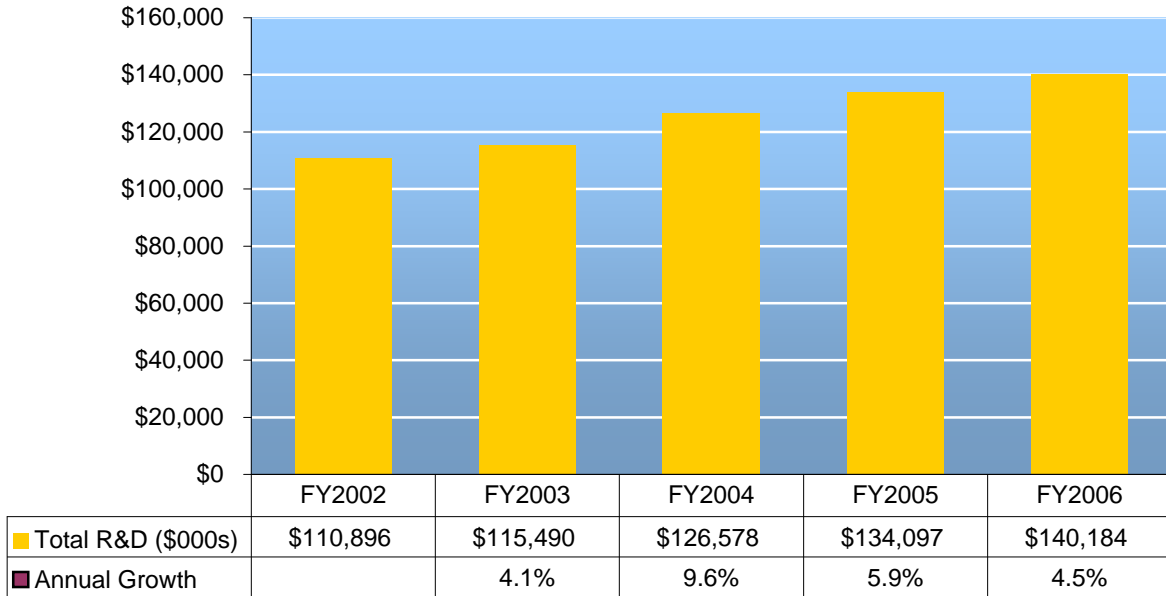


## Total R&D Expenditures FY2006

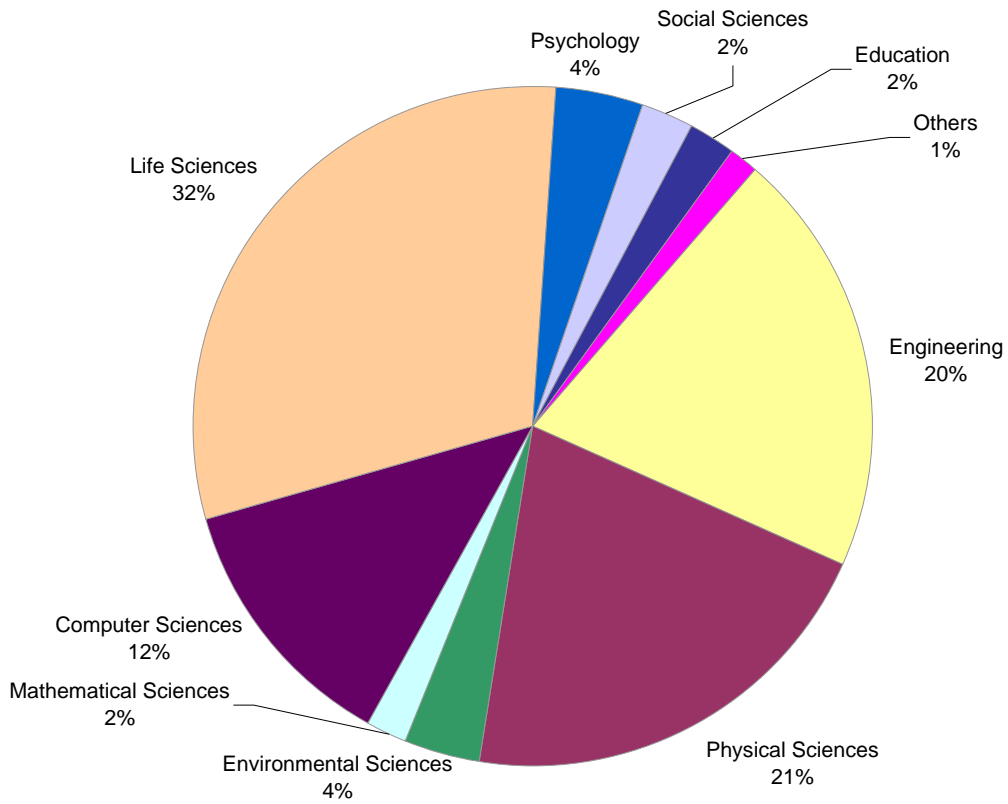


# Amherst

## Total R&D Expenditures FY2002 – FY2006

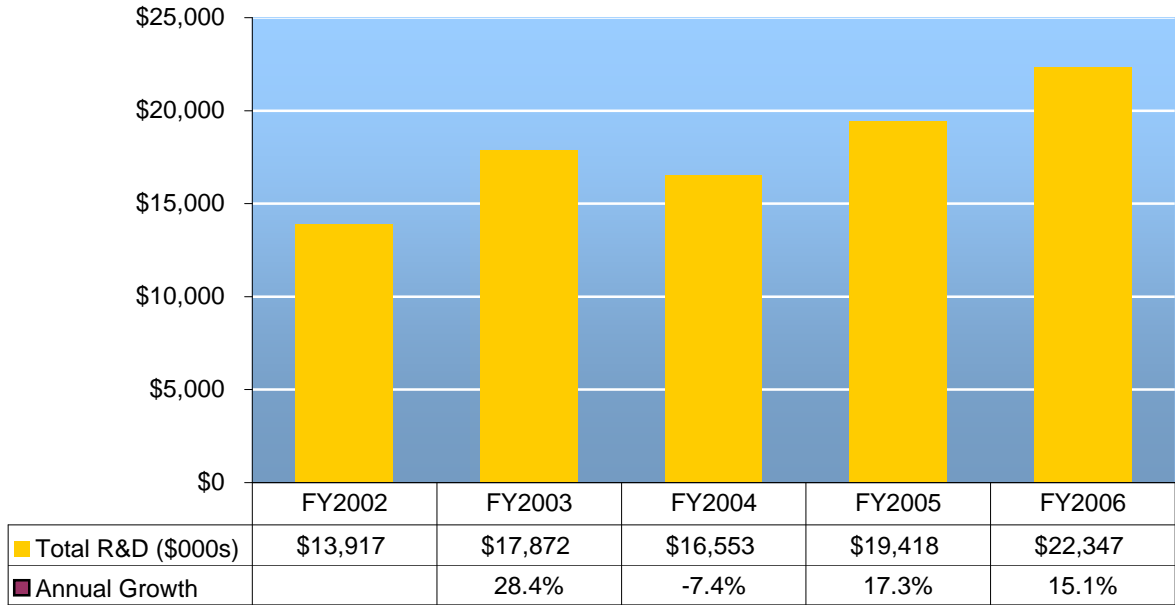


## Total R&D Expenditures FY2006

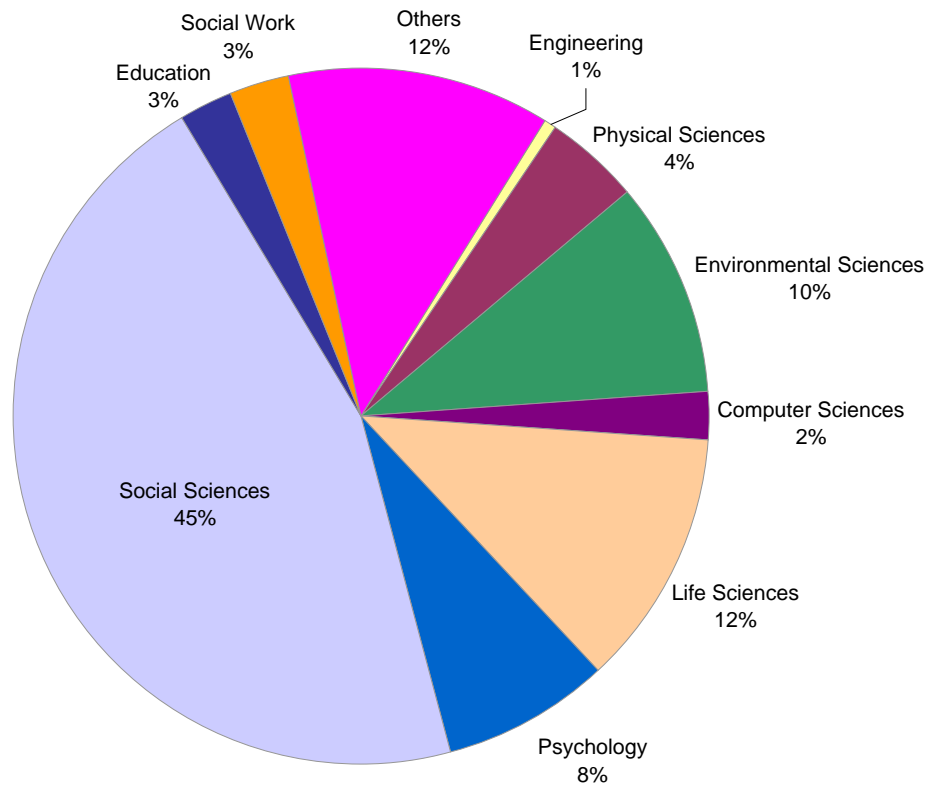


# Boston

## Total R&D Expenditures FY2002 – FY2006

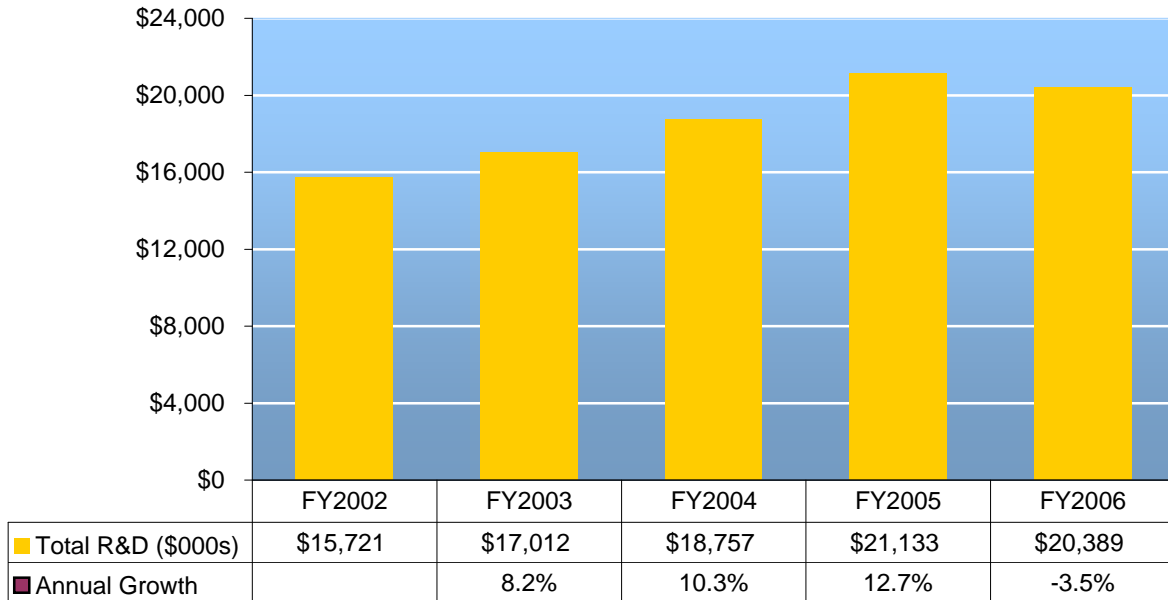


## Total R&D Expenditures FY2006

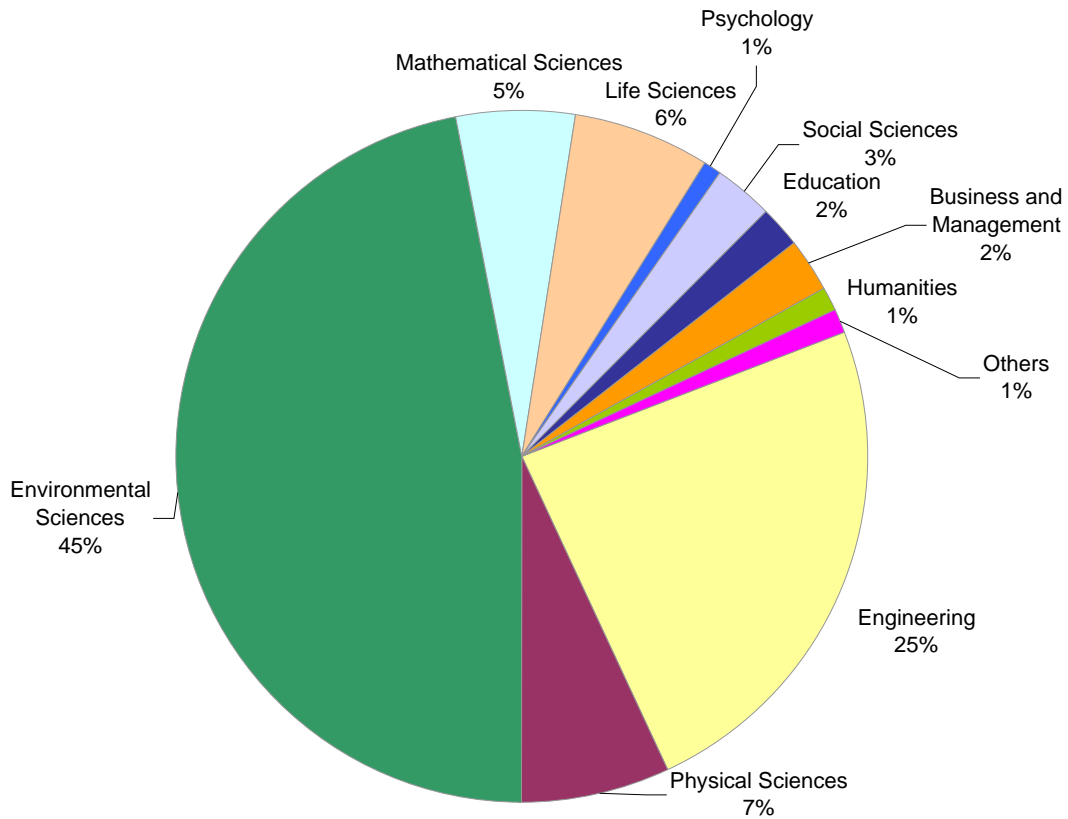


# Dartmouth

## Total R&D Expenditures FY2002 – FY2006



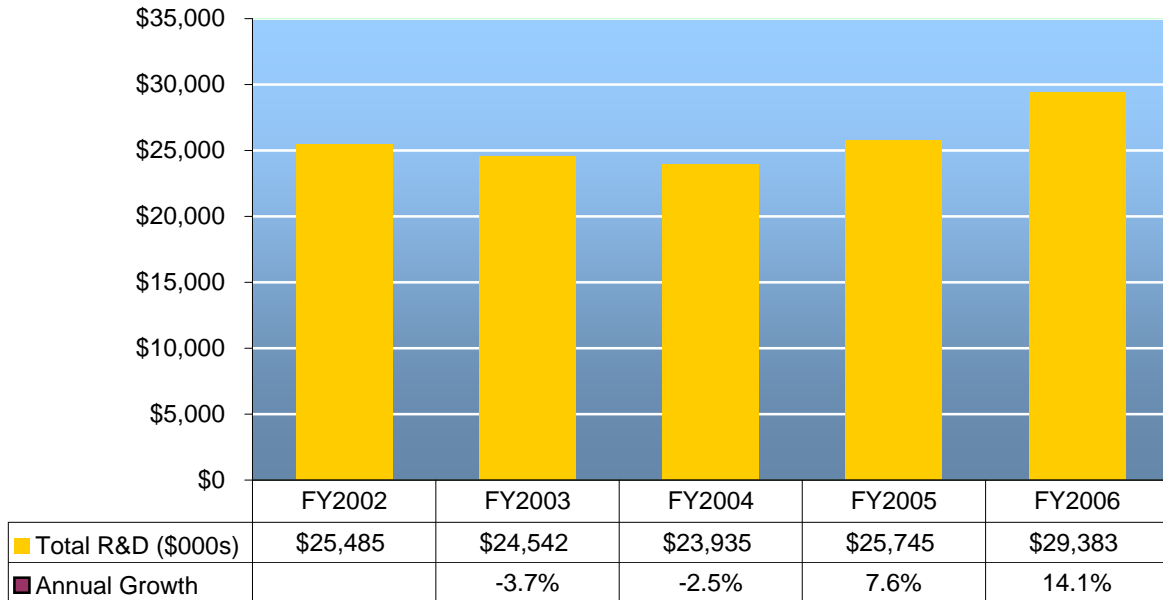
## Total R&D Expenditures FY2006



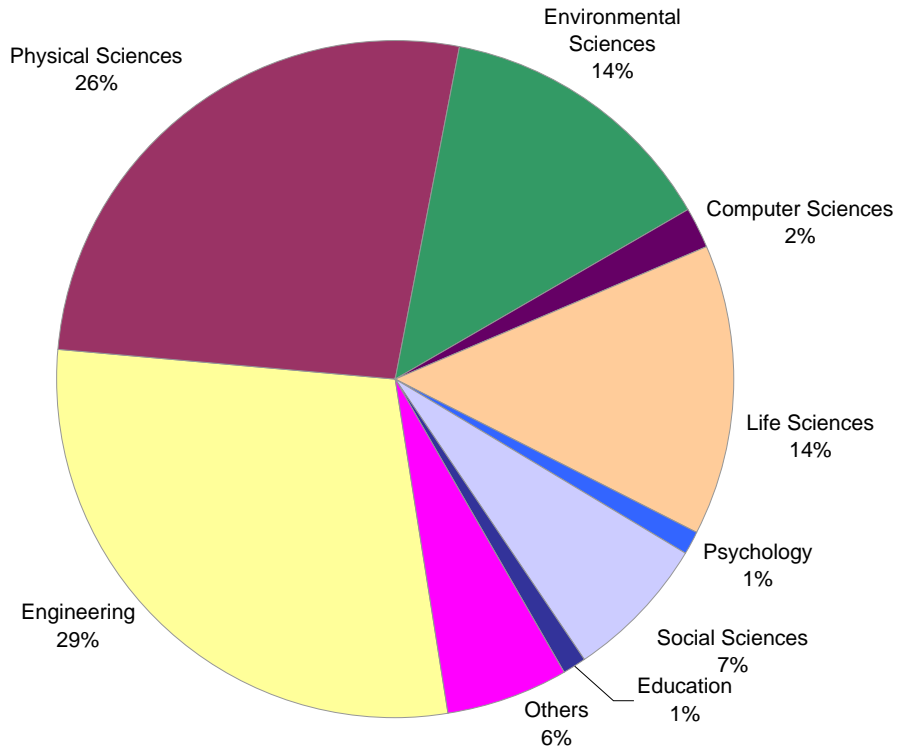


# Lowell

## Total R&D Expenditures FY2002 – FY2006

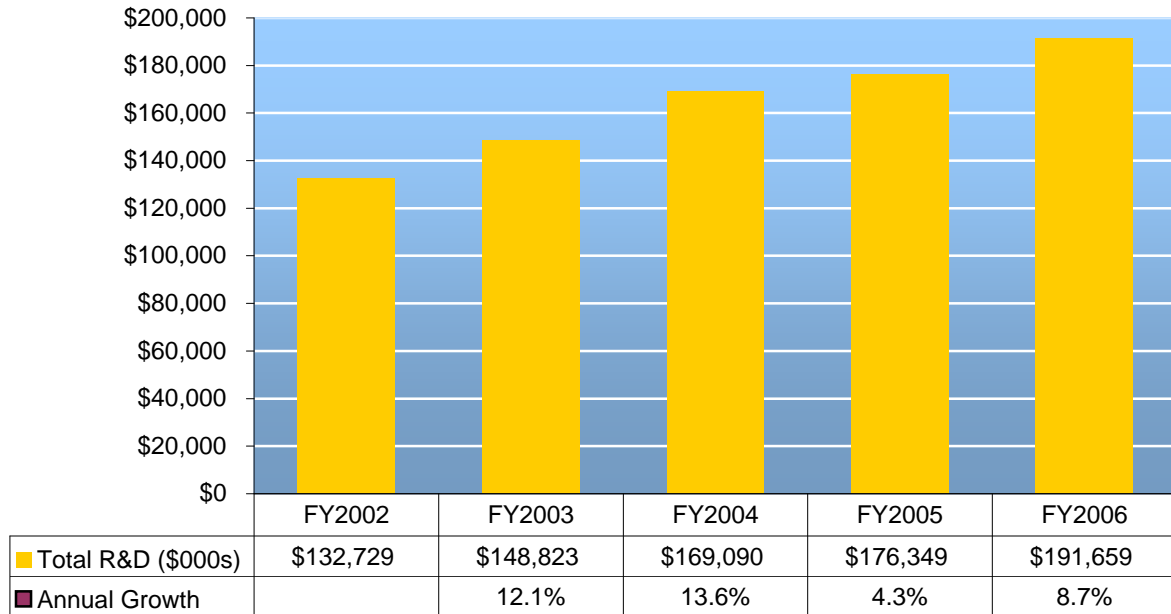


## Total R&D Expenditures FY2006



## Worcester

### Total R&D Expenditures FY2002 – FY2006



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

## Total R&D Expenditures By Field FY2006

FIELD	UMA FY2006	% of UMA Total	% of Field	UMB FY2006	% of UMB Total	% of Field	UMD FY2006	% of UMD Total	% of Field	UML FY2006	% of UML Total	% of Field	UMW FY2006	% of UMW Total	% of Field	System FY2006	% of Total
<b>Engineering (Total)</b>	<b>\$ 28,301</b>	<b>20.2%</b>	<b>67.7%</b>	<b>\$ 124</b>	<b>0.6%</b>	<b>0.3%</b>	<b>\$ 4,877</b>	<b>23.9%</b>	<b>11.7%</b>	<b>\$ 8,522</b>	<b>29.0%</b>	<b>20.4%</b>	<b>\$ -</b>			<b>\$ 41,824</b>	<b>10.4%</b>
Aeronautical & Astronomical	\$ -			\$ -			\$ -			\$ -			\$ -			\$ -	
Bioengineering/Biomedical	\$ -			\$ -			\$ 25	0.1%	100.0%	\$ -			\$ -			\$ 25	0.0%
Chemical	\$ 3,422	2.4%	93.5%	\$ -			\$ -			\$ 237	0.8%	6.5%	\$ -			\$ 3,659	0.9%
Civil	\$ 7,409	5.3%	92.6%	\$ -			\$ 366	1.8%	4.6%	\$ 229	0.8%	2.9%	\$ -			\$ 8,004	2.0%
Electrical	\$ 11,575	8.3%	88.5%	\$ -			\$ 682	3.3%	5.2%	\$ 821	2.8%	6.3%	\$ -			\$ 13,078	3.2%
Mechanical	\$ 5,411	3.9%	71.7%	\$ -			\$ 362	1.8%	4.8%	\$ 1,778	6.1%	23.5%	\$ -			\$ 7,551	1.9%
Metallurgical & Materials	\$ -		0.0%	\$ -			\$ 602	3.0%	22.8%	\$ 2,040	6.9%	77.2%	\$ -			\$ 2,642	0.7%
Other	\$ 484	0.3%	7.1%	\$ 124	0.6%	1.8%	\$ 2,840	13.9%	41.4%	\$ 3,417	11.6%	49.8%	\$ -			\$ 6,865	1.7%
<b>Physical Sciences (Total)</b>	<b>\$ 29,363</b>	<b>20.9%</b>	<b>74.3%</b>	<b>\$ 970</b>	<b>4.3%</b>	<b>2.5%</b>	<b>\$ 1,422</b>	<b>7.0%</b>	<b>3.6%</b>	<b>\$ 7,767</b>	<b>26.4%</b>	<b>19.7%</b>	<b>\$ -</b>			<b>\$ 39,522</b>	<b>9.8%</b>
Astronomy	\$ 6,768	4.8%	100.0%	\$ -			\$ -			\$ -			\$ -			\$ 6,768	1.7%
Chemistry	\$ 18,146	12.9%	88.4%	\$ 634	2.8%	3.1%	\$ 1,039	5.1%	5.1%	\$ 697	2.4%	3.4%	\$ -			\$ 20,516	5.1%
Physics	\$ 4,306	3.1%	35.6%	\$ 336	1.5%	2.8%	\$ 383	1.9%	3.2%	\$ 7,070	24.1%	58.5%	\$ -			\$ 12,095	3.0%
Other	\$ 143	0.1%	100.0%	\$ -			\$ -			\$ -			\$ -			\$ 143	0.0%
<b>Environmental Sciences (Total)</b>	<b>\$ 4,938</b>	<b>3.5%</b>	<b>23.8%</b>	<b>\$ 2,250</b>	<b>10.1%</b>	<b>10.8%</b>	<b>\$ 9,565</b>	<b>46.9%</b>	<b>46.1%</b>	<b>\$ 4,016</b>	<b>13.7%</b>	<b>19.3%</b>	<b>\$ -</b>			<b>\$ 20,769</b>	<b>5.1%</b>
Atmospheric	\$ -			\$ -			\$ -			\$ -			\$ -			\$ -	
Earth Sciences	\$ 3,604	2.6%	47.3%	\$ -			\$ -			\$ 4,016	13.7%	52.7%	\$ -			\$ 7,620	1.9%
Oceanography	\$ 264	0.2%	2.5%	\$ 936	4.2%	8.7%	\$ 9,565	46.9%	88.9%	\$ -			\$ -			\$ 10,765	2.7%
Other	\$ 1,070	0.8%	44.9%	\$ 1,314	5.9%	55.1%	\$ -			\$ -			\$ -			\$ 2,384	0.6%
<b>Mathematical Sciences (Total)</b>	<b>\$ 2,981</b>	<b>2.1%</b>	<b>69.3%</b>	<b>\$ 100</b>	<b>0.4%</b>	<b>2.3%</b>	<b>\$ 1,136</b>	<b>5.6%</b>	<b>26.4%</b>	<b>\$ 82</b>	<b>0.3%</b>	<b>1.9%</b>	<b>\$ -</b>			<b>\$ 4,299</b>	<b>1.1%</b>
<b>Computer Sciences (Total)</b>	<b>\$ 17,404</b>	<b>12.4%</b>	<b>93.2%</b>	<b>\$ 502</b>	<b>2.2%</b>	<b>2.7%</b>	<b>\$ 162</b>	<b>0.8%</b>	<b>0.9%</b>	<b>\$ 600</b>	<b>2.0%</b>	<b>3.2%</b>	<b>\$ -</b>			<b>\$ 18,668</b>	<b>4.6%</b>
<b>Life Sciences (Total)</b>	<b>\$ 42,797</b>	<b>30.5%</b>	<b>17.6%</b>	<b>\$ 2,626</b>	<b>11.8%</b>	<b>1.1%</b>	<b>\$ 1,319</b>	<b>6.5%</b>	<b>0.5%</b>	<b>\$ 4,111</b>	<b>14.0%</b>	<b>1.7%</b>	<b>\$ 191,659</b>	<b>100.0%</b>	<b>79.0%</b>	<b>\$ 242,512</b>	<b>60.0%</b>
Agricultural	\$ 19,183	13.7%	96.3%	\$ -			\$ 744	3.6%	3.7%	\$ -			\$ -			\$ 19,927	4.9%
Biological	\$ 17,996	12.8%	21.9%	\$ 1,439	6.4%	1.8%	\$ 263	1.3%	0.3%	\$ 885	3.0%	1.1%	\$ 61,571	32.1%	74.9%	\$ 82,154	20.3%
Medical	\$ 3,191	2.3%	3.8%	\$ -			\$ -			\$ -	0.0%	0.0%	\$ 80,343	41.9%	96.2%	\$ 83,534	20.7%
Other	\$ 2,427	1.7%	4.3%	\$ 1,187	5.3%	2.1%	\$ 312	1.5%	0.5%	\$ 3,226	11.0%	5.67%	\$ 49,745	26.0%	87.4%	\$ 56,897	14.1%
<b>Psychology (Total)</b>	<b>\$ 5,977</b>	<b>4.3%</b>	<b>73.7%</b>	<b>\$ 1,758</b>	<b>7.9%</b>	<b>21.7%</b>	<b>\$ 123</b>	<b>0.6%</b>	<b>1.5%</b>	<b>\$ 251</b>	<b>0.9%</b>	<b>3.1%</b>	<b>\$ -</b>			<b>\$ 8,109</b>	<b>2.0%</b>
<b>Social Sciences (Total)</b>	<b>\$ 3,434</b>	<b>2.4%</b>	<b>21.3%</b>	<b>\$ 10,114</b>	<b>45.3%</b>	<b>62.6%</b>	<b>\$ 567</b>	<b>2.8%</b>	<b>3.5%</b>	<b>\$ 2,042</b>	<b>6.9%</b>	<b>12.6%</b>	<b>\$ -</b>			<b>\$ 16,157</b>	<b>4.0%</b>
Economics	\$ 1,175	0.8%	67.3%	\$ 78	0.3%	4.5%	\$ 388	1.9%	22.2%	\$ 106	0.4%	6.1%	\$ -			\$ 1,747	0.4%
Political Science	\$ 34	0.0%	3.9%	\$ 675	3.0%	77.0%	\$ 168	0.8%	19.2%	\$ -			\$ -			\$ 877	0.2%
Sociology	\$ 1,252	0.9%	76.7%	\$ 369	1.7%	22.6%	\$ 11			\$ -			\$ -			\$ 1,632	0.4%
Other	\$ 973	0.7%	8.2%	\$ 8,992	40.2%	75.6%	\$ -			\$ 1,936	6.6%	16.3%	\$ -			\$ 11,901	2.9%
<b>Other Sciences (Total)</b>	<b>\$ 862</b>	<b>0.6%</b>	<b>23.2%</b>	<b>\$ 2,612</b>	<b>11.7%</b>	<b>70.3%</b>	<b>\$ -</b>	<b>0.0%</b>	<b>0.0%</b>	<b>\$ 244</b>	<b>0.8%</b>	<b>6.6%</b>	<b>\$ -</b>			<b>\$ 3,718</b>	<b>0.9%</b>
<b>TOTAL, SCI &amp; ENG FIELDS</b>	<b>\$ 136,057</b>	<b>97.1%</b>	<b>34.4%</b>	<b>\$ 21,056</b>	<b>94.2%</b>	<b>5.3%</b>	<b>\$ 19,171</b>	<b>94.0%</b>	<b>4.8%</b>	<b>\$ 27,635</b>	<b>94.1%</b>	<b>7.0%</b>	<b>\$ 191,659</b>	<b>100.0%</b>	<b>48.5%</b>	<b>\$ 395,578</b>	<b>97.9%</b>

## Total R&D Expenditures By Field FY2006

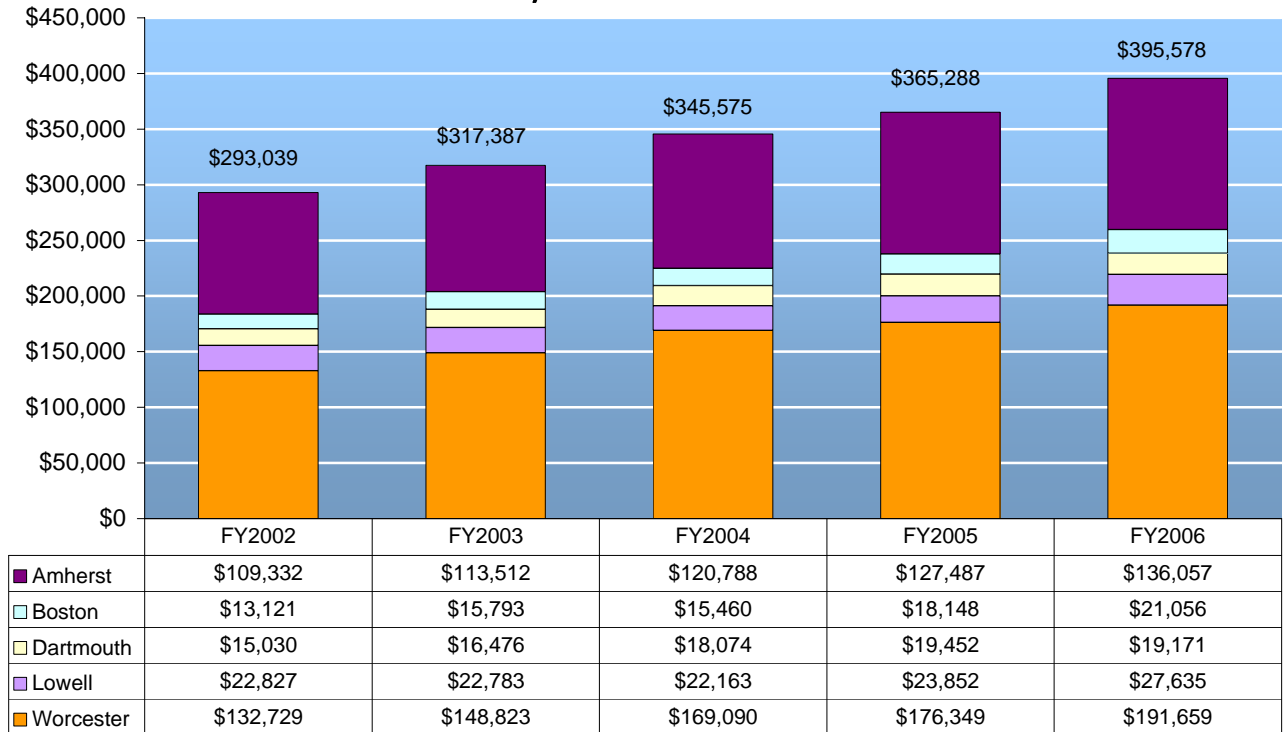
FIELD	UMA			UMB			UMD			UML			UMW			System	
	FY2006	% of Total	% of Field	FY2006	% of Total	% of Field	FY2006	% of Total	% of Field	FY2006	% of Total	% of Field	FY2006	% of Total	% of Field	FY2006	% of Total
Education	\$ 3,049	2.2%	68.9%	\$ 591	2.6%	13.4%	\$ 444	2.2%	10.0%	\$ 339	1.2%	7.7%	\$ -			\$ 4,423	1.1%
Law	\$ 57	0.0%	20.4%	\$ -			\$ -			\$ 222	0.8%	79.6%	\$ -			\$ 279	0.1%
Humanities	\$ 360	0.3%	58.3%	\$ 40	0.2%	6.5%	\$ 218	1.1%	35.3%	\$ -	0.0%	0.0%	\$ -			\$ 618	0.2%
Visual and Performing Arts	\$ -	0.0%	0.0%	\$ 47	0.2%	40.9%	\$ 44	0.2%	38.3%	\$ 24	0.08%	20.9%	\$ -			\$ 115	0.03%
Business and Management	\$ 661	0.5%	53.9%	\$ -	0.0%	0.0%	\$ 508	2.5%	41.4%	\$ 57	0.2%	4.6%	\$ -			\$ 1,226	0.3%
Comm., Journalism & Library Sci	\$ -		0.0%	\$ -		0.0%	\$ 4		100.0%	\$ -		0.0%	\$ -			\$ 4	0.0%
Social Work	\$ -		0.0%	\$ 613	2.7%	100.0%	\$ -		0.0%	\$ -		0.0%	\$ -			\$ 613	0.2%
Other Non-Science and Engin.	\$ -		0.0%	\$ -		0.0%	\$ -		0.0%	\$ 1,106		100.0%	\$ -			\$ 1,106	0.3%
<b>TOTAL, NON-SCI &amp; ENG FIELDS</b>	<b>\$ 4,127</b>	<b>2.9%</b>	<b>49.2%</b>	<b>\$ 1,291</b>	<b>5.8%</b>	<b>15.4%</b>	<b>\$ 1,218</b>	<b>6.0%</b>	<b>14.5%</b>	<b>\$ 1,748</b>	<b>5.9%</b>	<b>20.8%</b>	<b>\$ -</b>			<b>\$ 8,384</b>	<b>2.1%</b>
<b>TOTAL, SCI &amp; ENG FIELDS</b>	<b>\$ 136,057</b>	<b>97.1%</b>	<b>34.4%</b>	<b>\$ 21,056</b>	<b>94.2%</b>	<b>5.3%</b>	<b>\$ 19,171</b>	<b>94.0%</b>	<b>4.8%</b>	<b>\$ 27,635</b>	<b>94.1%</b>	<b>7.0%</b>	<b>\$ 191,659</b>	<b>100.0%</b>	<b>48.5%</b>	<b>\$ 395,578</b>	<b>97.9%</b>
<b>GRAND TOTAL</b>	<b>\$ 140,184</b>		<b>34.7%</b>	<b>\$ 22,347</b>		<b>5.5%</b>	<b>\$ 20,389</b>		<b>5.0%</b>	<b>\$ 29,383</b>		<b>7.3%</b>	<b>\$ 191,659</b>		<b>47.4%</b>	<b>\$ 403,962</b>	<b>100.0%</b>

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

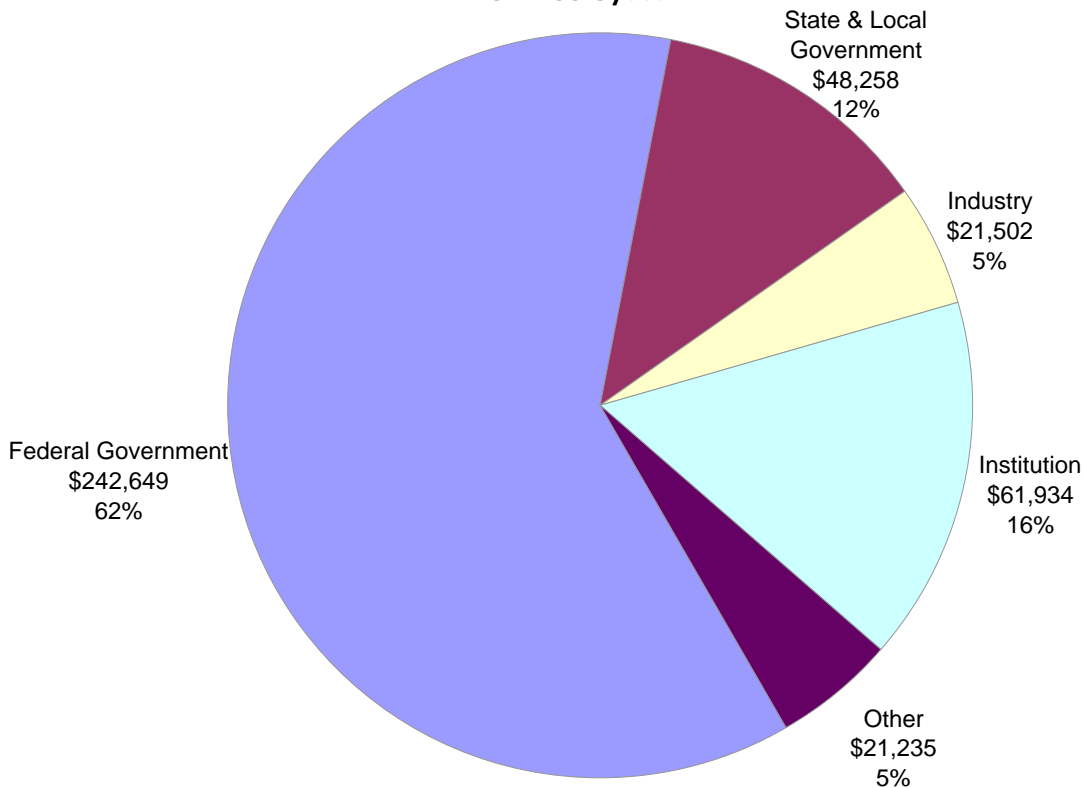
Note: % of Total is the percentage each field represents of total campus or system R&D expenditures in all fields.

% 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 FY2002 – FY2006



### Science and Engineering R&D Expenditures by Source of Funds FY2006 UMASS System



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

**Science and Engineering R&D Expenditures by Source  
FY1996 – FY2006**

	Total R&D Expenditures														
	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	10-Year Change FY96 - FY06		1-Year Change FY05 - FY06	
												\$	%	\$	%
<b>Amherst</b>	\$73,678	\$85,811	\$89,970	\$86,576	\$97,052	\$97,976	\$109,332	\$113,512	\$120,788	\$127,487	\$136,057	\$62,379	84.7%	\$8,570	6.7%
<b>Boston</b>	\$10,898	\$11,194	\$11,491	\$11,132	\$12,028	\$11,672	\$13,121	\$15,793	\$15,460	\$18,148	\$21,056	\$10,158	93.2%	\$2,908	16.0%
<b>Dartmouth</b>	\$4,092	\$4,197	\$4,902	\$5,820	\$6,905	\$9,488	\$15,030	\$16,476	\$18,074	\$19,452	\$19,171	\$15,079	368.5%	-\$281	-1.4%
<b>Lowell</b>	\$17,834	\$18,328	\$19,372	\$19,413	\$19,334	\$20,656	\$22,827	\$22,783	\$22,163	\$23,852	\$27,635	\$9,801	55.0%	\$3,783	15.9%
<b>Worcester</b>	\$63,341	\$71,346	\$82,950	\$83,040	\$97,587	\$111,221	\$132,729	\$148,823	\$169,090	\$176,349	\$191,659	\$128,318	202.6%	\$15,310	8.7%
<b>System</b>	<b>\$169,843</b>	<b>\$190,876</b>	<b>\$208,685</b>	<b>\$205,981</b>	<b>\$232,906</b>	<b>\$251,013</b>	<b>\$293,039</b>	<b>\$317,387</b>	<b>\$345,575</b>	<b>\$365,288</b>	<b>\$395,578</b>	<b>\$225,735</b>	<b>132.9%</b>	<b>\$30,290</b>	<b>8.3%</b>

	Federal R&D Expenditures														
	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	10-Year Change FY96 - FY06		1-Year Change FY05 - FY06	
												\$	%	\$	%
<b>Amherst</b>	\$37,969	\$40,925	\$43,196	\$39,877	\$44,697	\$49,576	\$54,770	\$60,845	\$65,452	\$66,921	\$69,642	\$31,673	83.4%	\$2,721	4.1%
<b>Boston</b>	\$2,706	\$3,075	\$3,160	\$2,951	\$3,378	\$2,546	\$4,837	\$5,579	\$5,412	\$6,326	\$8,610	\$5,904	218.2%	\$2,284	36.1%
<b>Dartmouth</b>	\$3,433	\$2,884	\$3,731	\$3,983	\$3,228	\$4,928	\$7,142	\$8,718	\$9,199	\$9,852	\$9,515	\$6,082	177.2%	-\$337	-3.4%
<b>Lowell</b>	\$10,257	\$11,560	\$12,259	\$10,354	\$9,905	\$11,196	\$14,932	\$15,821	\$16,655	\$17,608	\$18,741	\$8,484	82.7%	\$1,133	6.4%
<b>Worcester</b>	\$40,198	\$43,350	\$53,766	\$55,516	\$64,212	\$79,453	\$93,992	\$109,082	\$126,162	\$130,680	\$136,141	\$95,943	238.7%	\$5,461	4.2%
<b>System</b>	<b>\$94,563</b>	<b>\$101,794</b>	<b>\$116,112</b>	<b>\$112,681</b>	<b>\$125,420</b>	<b>\$147,699</b>	<b>\$175,673</b>	<b>\$200,045</b>	<b>\$222,880</b>	<b>\$231,387</b>	<b>\$242,649</b>	<b>\$148,086</b>	<b>156.6%</b>	<b>\$11,262</b>	<b>4.9%</b>

	State & Local Government R&D Expenditures														
	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	10-Year Change FY96 - FY06		1-Year Change FY05 - FY06	
												\$	%	\$	%
<b>Amherst</b>	\$5,933	\$6,546	\$7,072	\$6,354	\$6,961	\$3,969	\$4,185	\$3,842	\$3,597	\$3,873	\$5,684	-\$249	-4.2%	\$1,811	46.8%
<b>Boston</b>	\$2,405	\$1,705	\$1,351	\$1,261	\$1,211	\$1,447	\$1,112	\$1,291	\$1,001	\$2,481	\$1,662	-\$743	-30.9%	-\$819	-33.0%
<b>Dartmouth</b>	\$272	\$526	\$325	\$343	\$1,343	\$2,632	\$4,124	\$4,228	\$4,027	\$5,039	\$5,069	\$4,797	1763.6%	\$30	0.6%
<b>Lowell</b>	\$638	\$697	\$530	\$1,156	\$599	\$962	\$854	\$677	\$380	\$180	\$601	-\$37	-5.8%	\$421	233.9%
<b>Worcester</b>	\$11,912	\$14,747	\$15,811	\$18,308	\$23,474	\$22,088	\$27,891	\$26,976	\$27,018	\$27,221	\$35,242	\$23,330	195.9%	\$8,021	29.5%
<b>System</b>	<b>\$21,160</b>	<b>\$24,221</b>	<b>\$25,089</b>	<b>\$27,422</b>	<b>\$33,588</b>	<b>\$31,098</b>	<b>\$38,166</b>	<b>\$37,014</b>	<b>\$36,023</b>	<b>\$38,794</b>	<b>\$48,258</b>	<b>\$27,098</b>	<b>128.1%</b>	<b>\$9,464</b>	<b>24.4%</b>

**Science and Engineering R&D Expenditures by Source  
FY1996 – FY2006**

	Industry-Sponsored R&D Expenditures														
	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	10-Year Change FY96 - FY06		1-Year Change FY05 - FY06	
												\$	%	\$	%
<b>Amherst</b>	\$5,738	\$5,778	\$6,236	\$5,796	\$5,535	\$6,181	\$5,417	\$3,838	\$4,914	\$4,724	\$5,934	\$196	3.4%	\$1,210	25.6%
<b>Boston</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-	-	-	-
<b>Dartmouth</b>	\$325	\$412	\$831	\$771	\$652	\$517	\$2,120	\$0	\$753	\$1,252	\$1,680	\$1,355	416.9%	\$428	34.2%
<b>Lowell</b>	\$5,779	\$4,920	\$5,099	\$6,234	\$7,204	\$6,911	\$5,294	\$4,920	\$3,904	\$4,755	\$4,423	-\$1,356	-23.5%	-\$332	-7.0%
<b>Worcester</b>	\$1,146	\$2,129	\$2,631	\$4,265	\$3,467	\$3,317	\$3,275	\$4,397	\$5,904	\$8,018	\$9,465	\$8,319	725.9%	\$1,447	18.0%
<b>System</b>	<b>\$12,988</b>	<b>\$13,239</b>	<b>\$14,797</b>	<b>\$17,066</b>	<b>\$16,858</b>	<b>\$16,926</b>	<b>\$16,106</b>	<b>\$13,155</b>	<b>\$15,475</b>	<b>\$18,749</b>	<b>\$21,502</b>	<b>\$8,514</b>	<b>65.6%</b>	<b>\$2,753</b>	<b>14.7%</b>

	Institutional R&D Expenditures														
	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	10-Year Change FY96 - FY06		1-Year Change FY05 - FY06	
												\$	%	\$	%
<b>Amherst</b>	\$17,503	\$26,022	\$26,967	\$27,796	\$31,879	\$29,538	\$35,959	\$36,490	\$38,932	\$42,887	\$45,773	\$28,270	161.5%	\$2,886	6.7%
<b>Boston</b>	\$3,691	\$4,000	\$4,005	\$3,997	\$4,371	\$4,663	\$4,494	\$5,815	\$5,861	\$6,731	\$7,007	\$3,316	89.8%	\$276	4.1%
<b>Dartmouth</b>	\$62	\$375	\$15	\$723	\$1,677	\$1,411	\$1,644	\$2,585	\$4,092	\$3,305	\$2,907	\$2,845	4588.7%	-\$398	-12.0%
<b>Lowell</b>	\$1,160	\$1,151	\$1,484	\$1,669	\$1,626	\$1,587	\$1,747	\$1,365	\$1,224	\$1,309	\$3,870	\$2,710	233.6%	\$2,561	195.6%
<b>Worcester</b>	\$6,264	\$6,485	\$6,495	\$0	\$0	\$0	\$0	\$0	\$1,106	\$1,583	\$2,377	-\$3,887	-62.1%	\$794	50.2%
<b>System</b>	<b>\$28,680</b>	<b>\$38,033</b>	<b>\$38,966</b>	<b>\$34,185</b>	<b>\$39,553</b>	<b>\$37,199</b>	<b>\$43,844</b>	<b>\$46,255</b>	<b>\$51,215</b>	<b>\$55,815</b>	<b>\$61,934</b>	<b>\$33,254</b>	<b>115.9%</b>	<b>\$6,119</b>	<b>11.0%</b>

	Other R&D Expenditures														
	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	10-Year Change FY96 - FY06		1-Year Change FY05 - FY06	
												\$	%	\$	%
<b>Amherst</b>	\$6,535	\$6,540	\$6,499	\$6,753	\$7,980	\$8,712	\$9,001	\$8,503	\$7,893	\$9,082	\$9,024	\$2,489	38.1%	-\$58	-0.6%
<b>Boston</b>	\$2,096	\$2,414	\$2,975	\$2,923	\$3,098	\$3,016	\$2,678	\$3,108	\$3,186	\$2,610	\$3,777	\$1,681	80.2%	\$1,167	44.7%
<b>Dartmouth</b>	\$0	\$0	\$0	\$0	\$5	\$0	\$0	\$945	\$3	\$4	\$0	-	-	-\$4	-100.0%
<b>Lowell</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-	-	-	-
<b>Worcester</b>	\$3,821	\$4,635	\$4,247	\$4,951	\$6,434	\$6,383	\$7,571	\$8,368	\$8,900	\$8,847	\$8,434	\$4,613	120.7%	-\$413	-4.7%
<b>System</b>	<b>\$12,452</b>	<b>\$13,589</b>	<b>\$13,721</b>	<b>\$14,627</b>	<b>\$17,517</b>	<b>\$18,111</b>	<b>\$19,250</b>	<b>\$20,924</b>	<b>\$19,982</b>	<b>\$20,543</b>	<b>\$21,235</b>	<b>\$8,783</b>	<b>70.5%</b>	<b>\$692</b>	<b>3.4%</b>

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

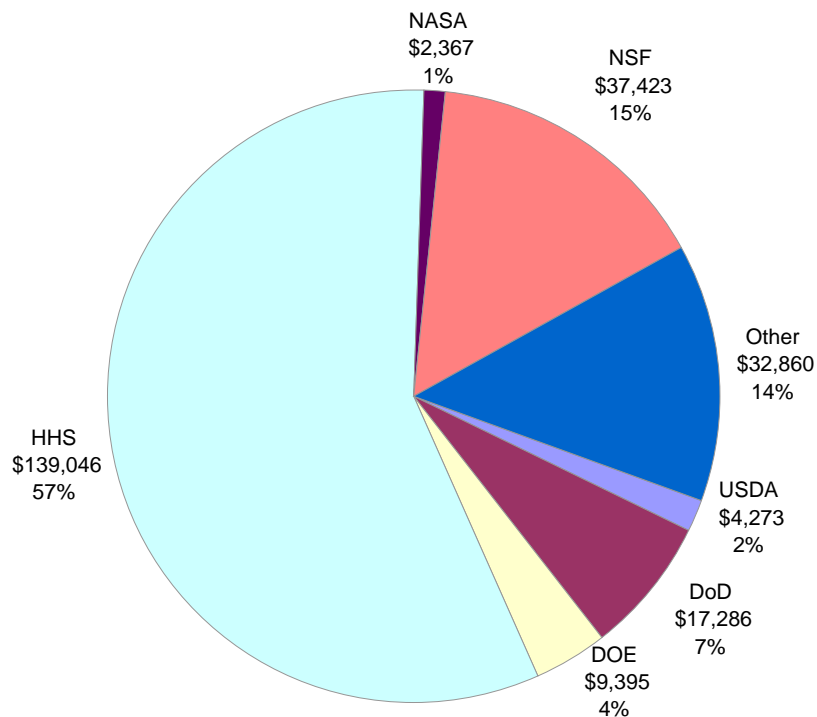
## Science and Engineering R&D Expenditures Percent Basic Research FY2006

FY06 Basic Research as a % of:		
	Federal R&D	Total R&D
Amherst	70%	70%
Boston	0%	0%
Dartmouth	74%	74%
Lowell	78%	78%
Worcester	40%	40%

Source: Campus NSF surveys.



**Science and Engineering R&D Expenditures  
by Federal Government Agency Sources FY2006  
UMASS System**

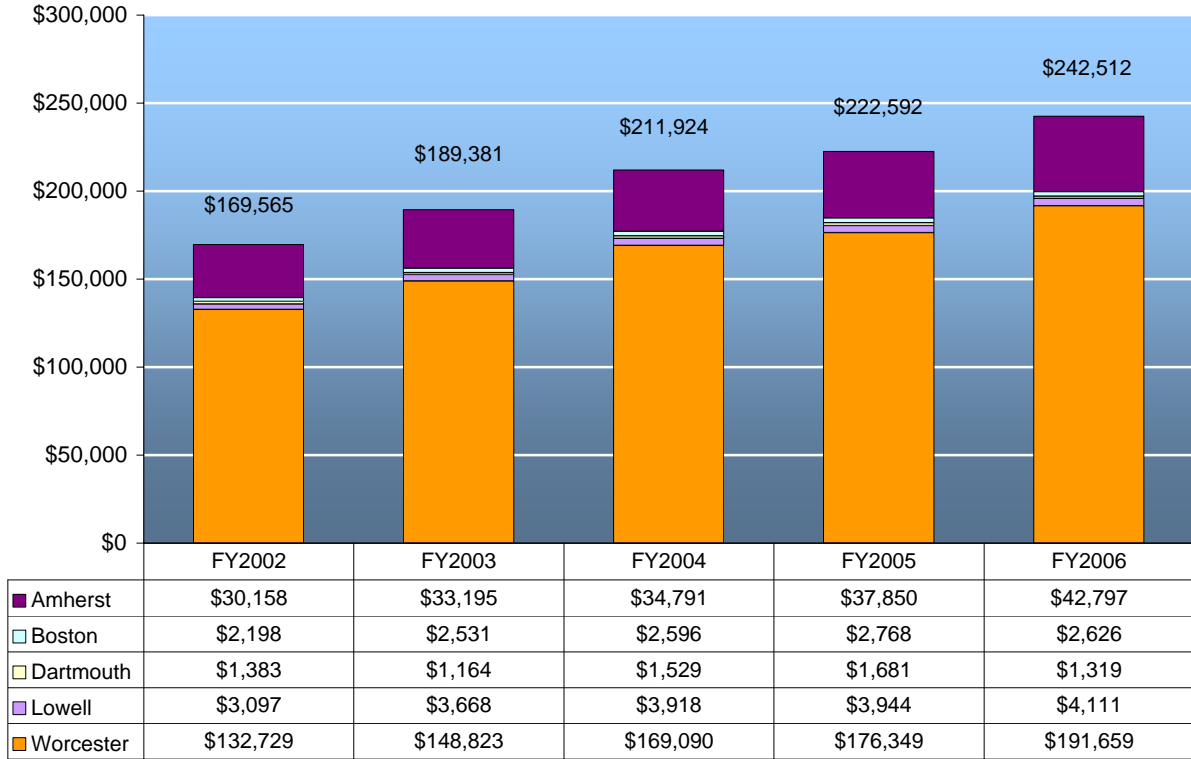


	Total Federal \$	USDA	% of Campus Total	DoD	% of Campus Total	DOE	% of Campus Total	HHS	% of Campus Total	NASA	% of Campus Total	NSF	% of Campus Total	Other	% of Campus Total
<b>Amherst</b>	\$ 69,642	\$ 3,668	5.3%	\$ 6,421	9.2%	\$ 7,480	10.7%	\$ 14,520	20.8%	\$ 1,458	2.1%	\$ 27,769	39.9%	\$ 8,326	12.0%
<b>Boston</b>	\$ 8,610	\$ -	0.0%	\$ 284	3.3%	\$ 713	8.3%	\$ 2,972	34.5%	\$ -	0.0%	\$ 3,843	44.6%	\$ 798	9.3%
<b>Dartmouth</b>	\$ 9,516	\$ 605	6.4%	\$ 243	2.6%	\$ -	0.0%	\$ 194	2.0%	\$ 389	4.1%	\$ 2,453	25.8%	\$ 5,632	59.2%
<b>Lowell</b>	\$ 18,741	\$ -	0.0%	\$ 9,362	50.0%	\$ 858	4.6%	\$ 3,813	20.3%	\$ 450	2.4%	\$ 2,797	14.9%	\$ 1,461	7.8%
<b>Worcester</b>	\$ 136,141	\$ -	0.0%	\$ 976	0.7%	\$ 344	0.3%	\$ 117,547	86.3%	\$ 70	0.1%	\$ 561	0.4%	\$ 16,643	12.2%
<b>System</b>	\$ 242,650	\$ 4,273	1.8%	\$ 17,286	7.1%	\$ 9,395	3.9%	\$ 139,046	57.3%	\$ 2,367	1.0%	\$ 37,423	15.4%	\$ 32,860	13.5%

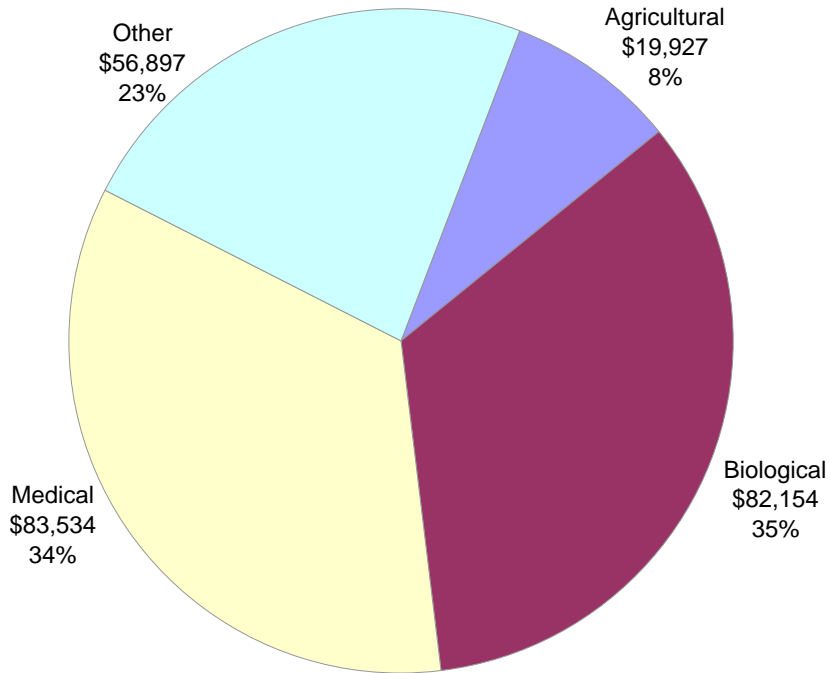
Source: Campus NSF surveys. All dollars are in thousands.

Note: HHS includes NIH

### Life Sciences R&D Expenditures UMASS System FY2002 – FY2006



### Life Sciences R&D Expenditures by Field FY2006 UMASS System



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

**Life Sciences R&D Expenditures by Field  
FY1996 – FY2006**

	Life Sciences R&D Expenditures														
	FY1996	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	10-Year Change FY96 - FY06		1-Year Change FY05 - FY06	
												\$	%	\$	%
<b>Amherst</b>	\$20,387	\$23,134	\$26,555	\$26,596	\$32,453	\$29,894	\$30,158	\$33,195	\$34,791	\$37,850	\$42,797	\$22,410	109.9%	\$4,947	13.1%
<b>Boston</b>	\$2,616	\$2,394	\$2,306	\$2,422	\$2,190	\$1,959	\$2,198	\$2,531	\$2,596	\$2,768	\$2,626	\$10	0.4%	-\$142	-5.1%
<b>Dartmouth</b>	\$1,094	\$1,081	\$851	\$1,085	\$1,028	\$858	\$1,383	\$1,164	\$1,529	\$1,681	\$1,319	\$225	20.6%	-\$362	-21.5%
<b>Lowell</b>	\$2,550	\$1,693	\$931	\$1,384	\$2,205	\$3,005	\$3,097	\$3,668	\$3,918	\$3,944	\$4,111	\$1,561	61.2%	\$167	4.2%
<b>Worcester</b>	\$63,341	\$71,346	\$82,950	\$83,040	\$97,587	\$111,221	\$132,729	\$148,823	\$169,090	\$176,349	\$191,659	\$128,318	202.6%	\$15,310	8.7%
<b>System</b>	<b>\$89,988</b>	<b>\$99,648</b>	<b>\$113,593</b>	<b>\$114,527</b>	<b>\$135,463</b>	<b>\$146,937</b>	<b>\$169,565</b>	<b>\$189,381</b>	<b>\$211,924</b>	<b>\$222,592</b>	<b>\$242,512</b>	<b>\$152,524</b>	<b>169.5%</b>	<b>\$19,920</b>	<b>8.9%</b>

	Agricultural														
	FY1996	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	10-Year Change FY96 - FY06		1-Year Change FY05 - FY06	
												\$	%	\$	%
<b>Amherst</b>	\$12,667	\$12,689	\$16,364	\$16,051	\$13,932	\$11,275	\$11,073	\$10,762	\$15,321	\$17,017	\$19,183	\$6,516	51.4%	\$2,166	12.7%
<b>Boston</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-	-	-	-
<b>Dartmouth</b>	\$739	\$824	\$688	\$865	\$835	\$659	\$956	\$617	\$1,064	\$1,180	\$744	\$5	0.7%	-\$436	-36.9%
<b>Lowell</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-	-	-	-
<b>Worcester</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-	-	-	-
<b>System</b>	<b>\$13,406</b>	<b>\$13,513</b>	<b>\$17,052</b>	<b>\$16,916</b>	<b>\$14,767</b>	<b>\$11,934</b>	<b>\$12,029</b>	<b>\$11,379</b>	<b>\$16,385</b>	<b>\$18,197</b>	<b>\$19,927</b>	<b>\$6,521</b>	<b>48.6%</b>	<b>\$1,730</b>	<b>9.5%</b>

	Biological														
	FY1996	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	10-Year Change FY96 - FY06		1-Year Change FY05 - FY06	
												\$	%	\$	%
<b>Amherst</b>	\$5,493	\$7,387	\$7,256	\$7,831	\$15,612	\$15,453	\$15,949	\$20,073	\$16,148	\$16,309	\$17,996	\$12,503	227.6%	\$1,687	10.3%
<b>Boston</b>	\$1,681	\$1,524	\$1,264	\$1,150	\$1,115	\$994	\$1,060	\$1,350	\$1,485	\$1,417	\$1,439	-\$242	-14.4%	\$22	1.6%
<b>Dartmouth</b>	\$182	\$127	\$135	\$205	\$169	\$191	\$413	\$258	\$169	\$190	\$263	\$81	44.5%	\$73	38.4%
<b>Lowell</b>	\$979	\$636	\$487	\$675	\$622	\$745	\$658	\$970	\$1,200	\$1,036	\$885	-\$94	-9.6%	-\$151	-14.6%
<b>Worcester</b>	\$18,338	\$21,357	\$29,038	\$30,079	\$32,296	\$35,724	\$44,810	\$50,967	\$57,951	\$58,543	\$61,571	\$43,233	235.8%	\$3,028	5.2%
<b>System</b>	<b>\$26,673</b>	<b>\$31,031</b>	<b>\$38,180</b>	<b>\$39,940</b>	<b>\$49,814</b>	<b>\$53,107</b>	<b>\$62,890</b>	<b>\$73,618</b>	<b>\$76,953</b>	<b>\$77,495</b>	<b>\$82,154</b>	<b>\$55,481</b>	<b>208.0%</b>	<b>\$4,659</b>	<b>6.0%</b>

**Life Sciences R&D Expenditures by Field  
FY1996 – FY2006**

	<b>Medical</b>														
	FY1996	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	10-Year Change FY96 - FY06		1-Year Change FY05 - FY06	
												\$	%	\$	%
<b>Amherst</b>	\$0	\$0	\$0	\$0	\$450	\$617	\$905	\$884	\$1,062	\$1,804	\$3,191	\$3,191	-	\$1,387	76.9%
<b>Boston</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-	-	-	-
<b>Dartmouth</b>	\$173	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-\$173	-100.0%	-	-
<b>Lowell</b>	\$591	\$405	\$387	\$481	\$1,475	\$1,955	\$2,266	\$2,681	\$2,715	\$2,886	\$0	-\$591	-100.0%	-\$2,886	-100.0%
<b>Worcester</b>	\$25,196	\$27,134	\$29,843	\$31,531	\$40,328	\$44,349	\$51,616	\$56,548	\$68,779	\$73,125	\$80,343	\$55,147	218.9%	\$7,218	9.9%
<b>System</b>	<b>\$25,960</b>	<b>\$27,539</b>	<b>\$30,230</b>	<b>\$32,012</b>	<b>\$42,253</b>	<b>\$46,921</b>	<b>\$54,787</b>	<b>\$60,113</b>	<b>\$72,556</b>	<b>\$77,815</b>	<b>\$83,534</b>	<b>\$57,574</b>	<b>221.8%</b>	<b>\$5,719</b>	<b>7.3%</b>

	<b>Other Life Sciences</b>														
	FY1996	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	10-Year Change FY96 - FY06		1-Year Change FY05 - FY06	
												\$	%	\$	%
<b>Amherst</b>	\$2,227	\$3,058	\$2,935	\$2,714	\$2,459	\$2,549	\$2,231	\$1,476	\$2,260	\$2,720	\$2,427	\$200	9.0%	-\$293	-10.8%
<b>Boston</b>	\$935	\$870	\$1,042	\$1,272	\$1,075	\$965	\$1,138	\$1,181	\$1,111	\$1,351	\$1,187	\$252	27.0%	-\$164	-12.1%
<b>Dartmouth</b>	\$0	\$130	\$28	\$15	\$24	\$8	\$14	\$289	\$296	\$311	\$312	\$312	-	\$1	0.3%
<b>Lowell</b>	\$980	\$652	\$57	\$228	\$108	\$305	\$173	\$17	\$3	\$22	\$3,226	\$2,246	229.2%	\$3,204	14563.6%
<b>Worcester</b>	\$19,807	\$22,855	\$24,069	\$21,430	\$24,963	\$31,148	\$36,303	\$41,308	\$42,360	\$44,681	\$49,745	\$29,938	151.1%	\$5,064	11.3%
<b>System</b>	<b>\$23,949</b>	<b>\$27,565</b>	<b>\$28,131</b>	<b>\$25,659</b>	<b>\$28,629</b>	<b>\$34,975</b>	<b>\$39,859</b>	<b>\$44,271</b>	<b>\$46,030</b>	<b>\$49,085</b>	<b>\$56,897</b>	<b>\$32,948</b>	<b>137.6%</b>	<b>\$7,812</b>	<b>15.9%</b>

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