



WPI

**WORCESTER POLYTECHNIC INSTITUTE
REPORT OF SPONSORED PROGRAM ACTIVITY**

for the Period

July 1, 2011 to June 30, 2012

Prepared by the

Office of Sponsored Programs

January 2013

(For WPI Use Only)

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Introduction

This report, published annually by the Office of Sponsored programs, aims to provide a summary of key data related to WPI's extramural funding activities, including proposals submitted, awards received, and funds expended.

This year's report differs from previous reports in a number of ways. First, in order to better reflect WPI's organizational structure, the charts now list departments under their corresponding dean whenever practical. We have added a new section on faculty participation and productivity, in which proposal and award activity are analyzed on a per capita basis. We have also added several new measures, including proposal success rates and data pertaining to subawards. These changes were instituted, in part, based on suggestions from our deans, department heads, and others within the WPI community.

As with prior years, this report includes only those proposals and awards administered by OSP. Proposals and awards that are exclusively the purview of the University Institutional Advancement Office, the Projects Program, or other University offices, are not included here. Every effort has been made to ensure the accuracy of data presented, but should any errors be noted, please let us know so that we may make corrections to the report.

We welcome your feedback on this report. Comments and suggestions can be submitted via e-mail to Gabe Johnson, Associate Director, Post-Award & Compliance (gjohnson@wpi.edu).

1. Summary of Sponsored Programs Activity

Figure 1-1: Awards, Proposals and Expenditures by Dean/Department

Worcester Polytechnic Institute										
Comparative Summary of Sponsored Program Activity by Department										
July 1, 2011 - June 30, 2012 and July 1, 2010 - June 30, 2011										
Department	Award Actions Received				Proposals Submitted				Expenditures	
	FY 2012		FY 2011		FY 2012		FY 2011		FY 2012	FY 2011
	No.	Amount	No.	Amount	No.	Amount	No.	Amount	Amount	Amount
Arts & Sciences										
Biology & Biotechnology	8	\$ 114,481	2	\$ 295,971	18	\$ 16,435,762	15	\$ 6,729,007	\$ 460,297	\$ 794,278
Chemistry & Biochemistry	10	2,595,186	8	2,524,912	16	7,423,184	17	5,803,187	1,735,894	832,169
Computer Science	23	4,017,842	13	3,183,209	42	64,805,823	33	31,217,981	2,969,987	2,370,726
Humanities & Arts	0	0	0	0	6	1,834,968	2	203,551	52,318	140,324
Mathematical Sciences	11	1,151,024	12	1,231,033	16	11,279,861	21	4,964,000	1,136,064	1,496,200
Physics	2	260,916	2	231,362	16	19,359,682	10	4,561,813	279,597	247,520
Social Science & Policy Studies	5	1,157,857	8	2,155,031	13	7,525,562	9	2,531,258	1,192,292	1,401,682
Arts & Sciences Subtotals	59	9,297,306	45	9,621,518	127	128,664,842	107	56,010,797	7,826,449	7,979,233
Business										
	2	1,461,791	3	391,334	6	3,289,525	8	2,705,938	453,290	324,622
Engineering										
Biomedical Engineering	10	553,400	10	334,877	35	17,810,952	24	8,753,771	322,990	1,100,156
Chemical Engineering	9	1,755,878	9	2,365,427	17	7,246,250	15	7,087,084	1,693,302	2,490,126
Civil & Environmental Engineering	2	101,584	2	44,777	19	3,801,803	12	3,536,135	176,211	266,061
Electrical & Computer Engineering	17	2,132,758	28	1,361,934	40	14,946,906	42	10,498,197	1,344,522	1,826,865
Fire Protection Engineering	4	386,797	4	368,759	15	2,959,399	19	3,966,466	430,949	827,060
Mechanical Engineering	29	1,952,268	27	3,036,274	70	26,397,307	50	19,493,076	2,153,196	2,288,451
Engineering Subtotals	71	6,882,685	80	7,512,048	196	73,162,617	162	53,334,729	6,121,170	8,798,719
Interdisciplinary & Global Studies										
	3	180,131	2	113,055	5	985,392	6	310,807	74,174	167,441
Other										
	5	328,000	6	434,938	6	1,276,084	5	723,963	344,592	359,974
Grand Totals	140	\$ 18,149,913	136	\$ 18,072,893	340	\$ 207,378,460	288	\$ 113,086,234	\$ 14,819,675	\$ 17,629,989

Figure 1-2: Summary of FY2012 Activity (with comparative data for FY2011)

	<u>FY2012</u>	<u>FY2011</u>	<u>%Change</u>
1. Number of Proposal Submissions	340	288	18.1%
2. \$ Composition of Proposals Submitted			
Direct Costs	\$ 157,246,415	\$ 86,004,057	82.8%
Indirect Costs	<u>\$ 50,132,046</u>	<u>\$ 27,082,177</u>	85.1%
Totals Requested	\$ 207,378,461	\$ 113,086,234	83.4%
Cost Sharing	<u>\$ 5,067,393</u>	<u>\$ 3,531,554</u>	43.5%
Total Project Costs Proposed	\$ 212,445,854	\$ 116,617,788	82.2%
3. Number of Proposals (Net of Congressional Funding)	340	287	18.5%
4. \$ Volume of Proposals (Net of Congressional Funding)			
Direct Costs	\$ 157,246,415	\$ 85,404,572	84.1%
Indirect Costs	<u>\$ 50,132,046</u>	<u>\$ 26,748,059</u>	87.4%
Totals Requested	\$ 207,378,461	\$ 112,152,631	84.9%
Cost Sharing	<u>\$ 5,067,393</u>	<u>\$ 3,531,554</u>	43.5%
Total Project Costs Proposed	\$ 212,445,854	\$ 115,684,185	83.6%
5. Number of Award Actions	140	136	2.9%
6. \$ Composition of Award Actions Received			
Direct Costs	\$ 13,471,025	\$ 13,400,997	0.5%
Indirect Costs	<u>\$ 4,678,888</u>	<u>\$ 4,671,896</u>	0.1%
Total Award \$ Received	\$ 18,149,913	\$ 18,072,893	0.4%
Cost Sharing	<u>\$ 1,022,471</u>	<u>\$ 1,233,918</u>	-17.1%
Total Project Costs	\$ 19,172,384	\$ 19,306,811	-0.7%
7. Number of Award Actions (Net of Congressional Funding)	139	134	3.7%
8. \$ Composition of Awards (Net of Congressional Funding)			
Direct Costs	\$ 11,682,336	\$ 12,722,669	-8.2%
Total Award \$ Received	\$ 15,621,290	\$ 17,019,290	-8.2%
Cost Sharing	<u>\$ 1,203,918</u>	<u>\$ 1,203,918</u>	0.0%
Total Project Costs (Net of Congressional Funding)	\$ 16,825,208	\$ 18,223,208	-7.7%
9. Selected Proposal Coordination Form (PCF) "Special Considerations" Summary Data:			
a. Proposals Involving Human Participants	48	58	-17.2%
b. Proposals Involving Use of Animals	25	18	38.9%
c. Proposals Involving Hazardous Materials	10	22	-54.5%
d. Proposals Requesting Support for Research Assistants	213	165	29.1%
e. Proposals Requesting Support for Non-Student Personnel	89	68	30.9%
f. Proposals Including Funds for Consultants/Subcontractors	80	63	27.0%
g. Proposals with Academic Year Faculty Salary Budgeted	49	32	53.1%
h. Proposals Requesting Equipment Funds	122	105	16.2%

2. Award Activity for Fiscal Year 2012

Figure 2-1: Awards by Dean/Department

Figure 2-1 below provides departmental data for award actions received in fiscal year 2012. It also includes summary information regarding indirect cost rates and cost sharing on awards (unaudited - for comparison purposes only) as well as a breakdown at the bottom of the report that shows total University award information and awards for science, technology, engineering and mathematics (STEM) departments only.

“Awards” are defined as funds which have been actually obligated and released by the sponsor. Some grants are awarded in yearly increments, subject to satisfactory progress and/or availability of funds. In such cases, only those increments actually received by WPI are counted as awards.

Worcester Polytechnic Institute Summary of Award Actions July 1, 2011 to June 30, 2012											
Department	No.	Award Amounts			Average Award Amount	Average Indirect Cost Rates ¹	Actual Cost Sharing	Average Cost Sharing per Award	Cost Sharing Effective Rates ²	Excess of Indirect Costs Over Cost Sharing	
		Direct Costs	Indirect Costs	Total Costs							
Arts & Sciences											
BBT	8	\$ 95,025	\$ 19,456	\$ 114,481	\$14,310	20.5%	\$ 2,903	\$ 363	2.5%	\$ 16,553	
CBC	10	1,856,559	738,627	2,595,186	\$259,519	39.8%	0	\$0	0.0%	738,627	
CS	23	2,879,714	1,138,128	4,017,842	\$174,689	39.5%	135,282	\$5,882	3.4%	1,002,846	
H&A	0	0	0	0	\$0	0.0%	0	\$0	0.0%	0	
MA	11	870,428	280,596	1,151,024	\$104,639	32.2%	14,861	\$1,351	1.3%	265,735	
PH	2	176,371	84,545	260,916	\$130,458	47.9%	0	\$0	0.0%	84,545	
SSPS	5	877,469	280,388	1,157,857	\$231,571	32.0%	130,641	\$26,128	0.0%	149,747	
A&S Totals	59	6,755,566	2,541,740	9,297,306	157,581	30.3%	283,687	4,808	1.0%	2,258,053	
Business	2	1,120,576	341,215	1,461,791	\$730,896	30.4%	0	\$0	0.0%	341,215	
Engineering											
BME	10	490,710	62,690	553,400	\$55,340	12.8%	177,826	\$17,783	32.1%	(115,136)	
CHE	9	1,450,459	305,419	1,755,878	\$195,098	21.1%	153,933	\$17,104	8.8%	151,486	
CEE	2	69,377	32,207	101,584	\$50,792	46.4%	0	\$0	0.0%	32,207	
ECE	17	1,388,802	743,956	2,132,758	\$125,456	53.6%	2,960	\$174	0.1%	740,996	
FPE	4	274,247	112,550	386,797	\$96,699	41.0%	0	\$0	0.0%	112,550	
ME	29	1,423,987	528,281	1,952,268	\$67,320	37.1%	260,150	\$8,971	13.3%	268,131	
Engineering Totals	71	5,097,582	1,785,103	6,882,685	96,939	35.3%	594,869	8,378	9.1%	1,190,234	
IGSD	3	169,301	10,830	180,131	\$60,044	6.4%	29,438	\$9,813	16.3%	(18,608)	
Other	5	\$328,000	\$0	\$328,000	\$65,600	0.0%	\$114,477	\$0	34.9%	\$(114,477)	
Totals	140	\$13,471,025	\$4,678,888	\$18,149,913	\$129,642	32.9%	\$1,022,471	\$7,303	5.6%	\$3,656,417	
STEM Departments	130	\$11,853,148	\$4,326,843	\$16,179,991	\$124,461	36.5%	\$878,556	\$6,758	5.4%	\$3,448,287	

¹Average indirect cost rates are expressed as a simple percentage of Total Direct Costs - actual rates will be somewhat higher based on MTDC.

²Cost sharing effective rates are expressed as a simple percentage of Total Costs.

Long-term historical award trends (institutional and department-specific) can be found in Appendix 2.

Figure 2-2: Awards by Sponsor

Figure 2.2 below provides a comparative breakdown by major sponsor in terms of numbers and dollar amounts of awards received in fiscal years 2012 and 2011.

Worcester Polytechnic Institute Comparative Summary of Awards Received by Sponsor FY2012 and FY2011

Sponsor	FY2012				FY2011			
	No.	%	Amount	%	No.	%	Amount	%
Federal								
Air Force	6	4.3%	\$ 429,292	2.4%	7	5.1%	\$ 409,014	2.3%
Army	5	3.6%	1,754,327	9.7%	7	5.1%	2,292,276	12.7%
DARPA	5	3.6%	513,470	2.8%	7	5.1%	629,458	3.5%
US Dept. of Education	5	3.6%	1,058,182	5.8%	4	2.9%	678,282	3.8%
Department of Energy	6	4.3%	1,532,729	8.4%	6	4.4%	1,995,336	11.0%
DHHS	7	5.0%	660,272	3.6%	16	11.8%	2,250,676	12.5%
NASA	3	2.1%	217,432	1.2%	4	2.9%	126,950	0.7%
NIST	2	1.4%	155,574	0.9%	2	1.5%	287,978	1.6%
National Science Foundation	53	37.9%	9,148,926	50.4%	35	25.7%	6,446,917	35.7%
Navy	3	2.1%	172,230	0.9%	8	5.9%	203,009	1.1%
U.S. Dept. of Veterans Affairs	2	1.4%	338,273	1.9%	2	1.5%	377,885	2.1%
Other Federal	7	5.0%	313,193	1.7%	3	2.2%	59,637	0.3%
<i>Subtotal - Federal</i>	104	74.3%	\$16,293,900	89.8%	101	74.3%	\$15,757,418	87.2%
Non-Federal								
Commonwealth of Massachusetts	5	3.6%	\$ 265,991	1.5%	5	3.7%	\$ 199,343	1.1%
Corporations	20	14.3%	797,207	4.4%	18	13.2%	875,655	4.8%
Foundations	5	3.6%	514,543	2.8%	4	2.9%	412,438	2.3%
Foreign Organizations	2	1.4%	138,660	0.8%	4	2.9%	285,039	1.6%
Private Organization (univ., assoc.)	4	2.9%	139,612	0.8%	4	2.9%	543,000	3.0%
<i>Subtotal - Non-Federal</i>	36	25.7%	1,856,013	10.2%	35	25.7%	2,315,475	12.8%
Totals	140	100.0%	\$18,149,913	100.0%	136	100.0%	\$18,072,893	100.0%

3. Expenditure Activity for Fiscal Year 2012

Figure 3-1: Sponsored Program Expenditures by Dean/Department

Worcester Polytechnic Institute								
Summary of Sponsored Program Expenditure Activity by Department								
July 1, 2011 - June 30, 2012								
Department	Compensation & Benefits	Equipment, Supplies & Materials	Travel	Subawards	Other Direct Costs	F&A Costs	Cost Sharing	Totals
Arts & Sciences								
BBT	155,057	54,941	3,075	-	118,477	150,311	(21,564)	460,297
CBC	895,108	111,214	16,304	63,167	126,088	524,455	(443)	1,735,894
CS	1,264,096	54,362	97,990	208,505	848,224	648,673	(151,863)	2,969,987
H&A	15,208	1,082	12,961	-	5,124	17,944	-	52,318
MA	409,798	37,815	63,440	190,969	157,868	280,558	(4,384)	1,136,064
PH	133,024	48,291	2,259	-	14,955	83,779	(2,710)	279,597
SSPS	566,244	5,374	30,937	124,078	129,434	336,225	-	1,192,292
A&S Totals	3,438,535	313,078	226,967	586,719	1,400,170	2,041,944	(180,964)	7,826,449
Business	235,061	1,207	17,969	57,798	34,121	113,509	(6,375)	453,290
Engineering								
BME	160,625	20,905	18,907	-	72,324	99,721	(49,491)	322,990
CHE	744,462	101,976	31,025	212,763	125,386	487,215	(9,466)	1,693,361
CEE	80,713	26,412	539	9,843	8,572	50,133	-	176,211
ECE	660,943	91,862	51,060	-	148,909	397,842	(6,094)	1,344,522
FPE	177,858	31,735	36,128	35,895	53,848	136,441	(40,955)	430,949
ME	1,105,059	130,381	63,105	-	225,192	682,738	(53,280)	2,153,196
Engineering Totals	2,929,661	403,270	200,763	258,500	634,231	1,854,090	(159,287)	6,121,229
IGSD	25,778	314	12,573	-	32,376	6,178	(3,045)	74,174
Other	119,959	18,791	50,799	20,322	131,198	50,856	(47,393)	344,533
Totals	\$ 6,748,994	\$ 736,660	\$ 509,072	\$ 923,340	\$ 2,232,096	\$ 4,066,577	\$ (397,064)	\$ 14,819,675
STEM Depts	\$ 6,352,989	\$ 715,266	\$ 414,769	\$ 845,220	\$ 2,029,277	\$ 3,878,091	\$ (340,251)	\$ 13,895,360

Figure 3-2: Comparison of FY 2012 and FY 2011

Worcester Polytechnic Institute
Comparative Summary of Sponsored Program Expenditure Activity
FY2012 and FY2011

<u>Element of Cost</u>	<u>FY2012 Expenses</u>	<u>FY2011 Expenses</u>	<u>% Change</u>
Salaries & Wages	\$5,880,805	\$6,588,293	-10.7%
Fringe Benefits	868,189	1,035,271	-16.1%
Equipment	301,477	471,753	-36.1%
Other Direct Expenses	<u>4,099,691</u>	<u>5,340,063</u>	-23.2%
Subtotal Direct Program Costs	\$11,150,162	\$13,435,380	-17.0%
Indirect Costs	<u>4,066,577</u>	<u>4,628,464</u>	-12.1%
Total Program Costs	\$15,216,739	\$18,063,844	-15.8%
Less: WPI Cost Sharing ¹	<u>(397,064)</u>	<u>(433,857)</u>	-8.5%
Total Sponsored Program Costs	<u><u>\$14,819,675</u></u>	<u><u>\$17,629,987</u></u>	-15.9%

¹Due to the method used for recording expenditures, a breakdown of WPI cost sharing to net against direct sponsored program costs by category is not possible without further analysis.

4. Proposal Activity for Fiscal Year 2012

Figure 4-1: Proposals by Dean/Department

Figure 4-1 below provides a departmental summary of proposal submission statistics for fiscal year 2012. This summary includes information about requested direct and indirect costs, average proposal amounts and indirect cost rates requested, and cost sharing on proposal submissions. There are totals shown at the bottom of the schedule for both the entire University and for science, technology, engineering and mathematics (STEM) departments only.

During FY2012, some NSF directorates implemented policy changes aimed at reducing the number of proposals submitted. These changes included, among other things, a competitive preliminary proposal process. Preliminary proposals are not counted as proposals for the purpose of this report. We do, however, wish to acknowledge the time and effort that WPI investigators spent working on them. OSP continues to monitor this evolving NSF policy, and we will work to develop reporting tools that properly reflect this activity.

Department	No.	Proposal Amounts			Average Proposal Amount	Average Indirect Cost Rates ¹	Proposed Cost Sharing	Average Cost Sharing per Proposal	Cost Sharing Effective Rates ²	Excess of Indirect Costs Over Cost Sharing
		Direct Costs	Indirect Costs	Total Costs						
Arts & Sciences										
BBT	18	\$ 12,228,665	\$ 4,207,097	\$ 16,435,762	\$ 913,098	34.4%	\$ 234,129	\$13,007	1.4%	\$ 3,972,968
CBC	16	5,243,052	2,280,130	7,523,182	\$470,199	43.5%	363,216	\$22,701	4.8%	1,916,914
CS	42	48,512,174	16,293,649	64,805,823	\$1,542,996	33.6%	303,658	\$7,230	0.5%	15,989,991
H&A	6	1,396,699	438,269	1,834,968	\$305,828	31.4%	737,396	\$122,899	0.0%	(299,127)
MA	16	8,571,584	2,708,277	11,279,861	\$704,991	31.6%	171,081	\$10,693	1.5%	2,537,196
PH	16	15,585,727	3,773,957	19,359,684	\$1,209,980	24.2%	56,463	\$3,529	0.3%	3,717,494
SSPS	13	5,237,310	2,288,253	7,525,563	\$578,889	43.7%	154,461	\$11,882	0.0%	2,133,792
A&S Totals	127	96,775,211	31,989,632	128,764,843	1,013,896	34.6%	2,020,404	15,909	1.2%	29,969,228
Business	6	2,319,490	970,035	3,289,525	\$548,254	41.8%	0	\$0	0.0%	970,035
Engineering										
BME	35	13,157,738	4,653,213	17,810,951	\$508,884	35.4%	962,423	\$27,498	5.4%	3,690,790
CHE	17	5,727,919	1,418,331	7,146,250	\$420,368	24.8%	903,485	\$53,146	12.6%	514,846
CEE	19	2,870,224	931,579	3,801,803	\$200,095	32.5%	196,209	\$10,327	5.2%	735,370
ECE	40	11,680,114	3,266,792	14,946,906	\$373,673	28.0%	10,567	\$264	0.1%	3,256,225
FPE	15	2,115,789	843,610	2,959,399	\$197,293	39.9%	262,419	\$17,495	8.9%	581,191
ME	70	20,600,959	5,796,349	26,397,308	\$377,104	28.1%	270,492	\$3,864	1.0%	5,525,857
Engineering Totals	196	56,152,743	16,909,874	73,062,617	372,768	31.4%	2,605,595	13,294	5.5%	14,304,279
IGSD	5	733,739	251,653	985,392	\$197,078	34.3%	425,394	\$85,079	43.2%	(173,741)
Other	6	1,265,232	10,852	1,276,084	\$212,681	0.9%	16,000	\$2,667	1.3%	(5,148)
Totals	340	\$157,246,415	\$50,132,046	\$207,378,461	\$609,937	31.7%	\$5,067,393	\$14,904	2.4%	\$45,064,653
STEM Departments	317	\$151,531,255	\$48,461,237	\$199,992,492	\$630,891	32.0%	\$3,888,603	\$12,267	1.9%	\$44,572,634

¹Average indirect cost rates are expressed as a simple percentage of Total Direct Costs - actual rates will be somewhat higher based on MTDC.

²Cost sharing effective rates are expressed as a simple percentage of Total Costs.

Long-term historical proposal trends (institutional and department-specific) can be found in Appendix 2.

Figure 4-2: Proposals by Sponsor

Figure 4.2 below provides a comparative breakdown by major sponsor in terms of numbers and dollar amounts of proposals submitted in fiscal years 2012 and 2011.

Worcester Polytechnic Institute
Comparative Summary of Proposal Submissions by Sponsor
FY2012 and FY2011

Sponsor	FY2012				FY2011			
	No.	%	Amount	%	No.	%	Amount	%
Federal								
Air Force	8	2.4%	\$ 1,165,395	0.6%	9	3.1%	\$ 800,844	0.7%
Army	11	3.2%	10,451,919	5.0%	6	2.1%	3,941,267	3.5%
DARPA	11	3.2%	12,223,545	5.9%	6	2.1%	909,401	0.8%
US Dept. of Education	7	2.1%	19,315,986	9.3%	8	2.8%	5,577,704	4.9%
Department of Energy	9	2.6%	2,562,466	1.2%	9	3.1%	3,648,235	3.2%
Health & Human Services	41	12.1%	41,486,728	20.0%	34	11.8%	29,265,441	25.9%
Homeland Security	6	1.8%	1,791,430	0.9%	7	2.4%	2,402,689	2.1%
NASA	6	1.8%	600,958	0.3%	9	3.1%	739,878	0.7%
NEH	2	0.6%	591,217	0.3%	0	0.0%	0	0.0%
National Science Foundation	131	38.5%	78,602,098	37.9%	110	38.2%	56,048,900	49.6%
Navy	16	4.7%	4,869,997	2.3%	10	3.5%	1,083,834	1.0%
NIST	1	0.3%	49,086	0.0%	1	0.3%	24,150	0.0%
Dept. of Transportation	1	0.3%	68,325	0.0%	2	0.7%	235,628	0.2%
U.S. Dept. of Veterans Affairs	2	0.6%	53,801	0.0%	2	0.7%	99,543	0.1%
Other Federal	15	4.4%	4,020,528	1.9%	11	3.8%	2,222,890	2.0%
<i>Subtotal - Federal</i>	<i>267</i>	<i>78.5%</i>	<i>\$177,853,479</i>	<i>85.8%</i>	<i>224</i>	<i>77.8%</i>	<i>\$107,000,404</i>	<i>94.6%</i>
Commonwealth of Massachusetts	6	1.8%	\$ 21,197,846	10.2%	7	2.4%	\$ 390,849	0.3%
Corporations	32	9.4%	2,443,379	1.2%	20	6.9%	1,595,759	1.4%
Foundations	13	3.8%	1,954,707	0.9%	11	3.8%	1,108,563	1.0%
Foreign Organizations	1	0.3%	100,000	0.0%	7	2.4%	574,064	0.5%
Private Organizations	19	5.6%	1,249,049	0.6%	19	6.6%	2,416,595	2.1%
Public Organizations (local govt)	2	0.6%	2,580,000	1.2%	0	0.0%	0	0.0%
<i>Subtotal - Non Federal</i>	<i>73</i>	<i>21.5%</i>	<i>29,524,981</i>	<i>14.2%</i>	<i>64</i>	<i>22.2%</i>	<i>6,085,830</i>	<i>5.4%</i>
Grand Totals	340	100.0%	\$207,378,460	100.0%	288	100.0%	\$113,086,234	100.0%

5. Faculty Participation and Productivity

This section contains information relating to the faculty's level of productivity as it pertains to sponsored programs. Productivity, in this sense, is the rate at which faculty receive awards and/or participate in proposals, whether as a principal investigator or as a co-principal investigator.

Figure 5-1: Faculty and Non-Faculty Activity

The following pie charts show the distribution of FY 2012 proposals and awards among the various classes of employees. Faculty, primarily tenured and tenure-track faculty, account for most proposals and awards. (Note: the following charts are based on the employee classification of the principal investigator.)

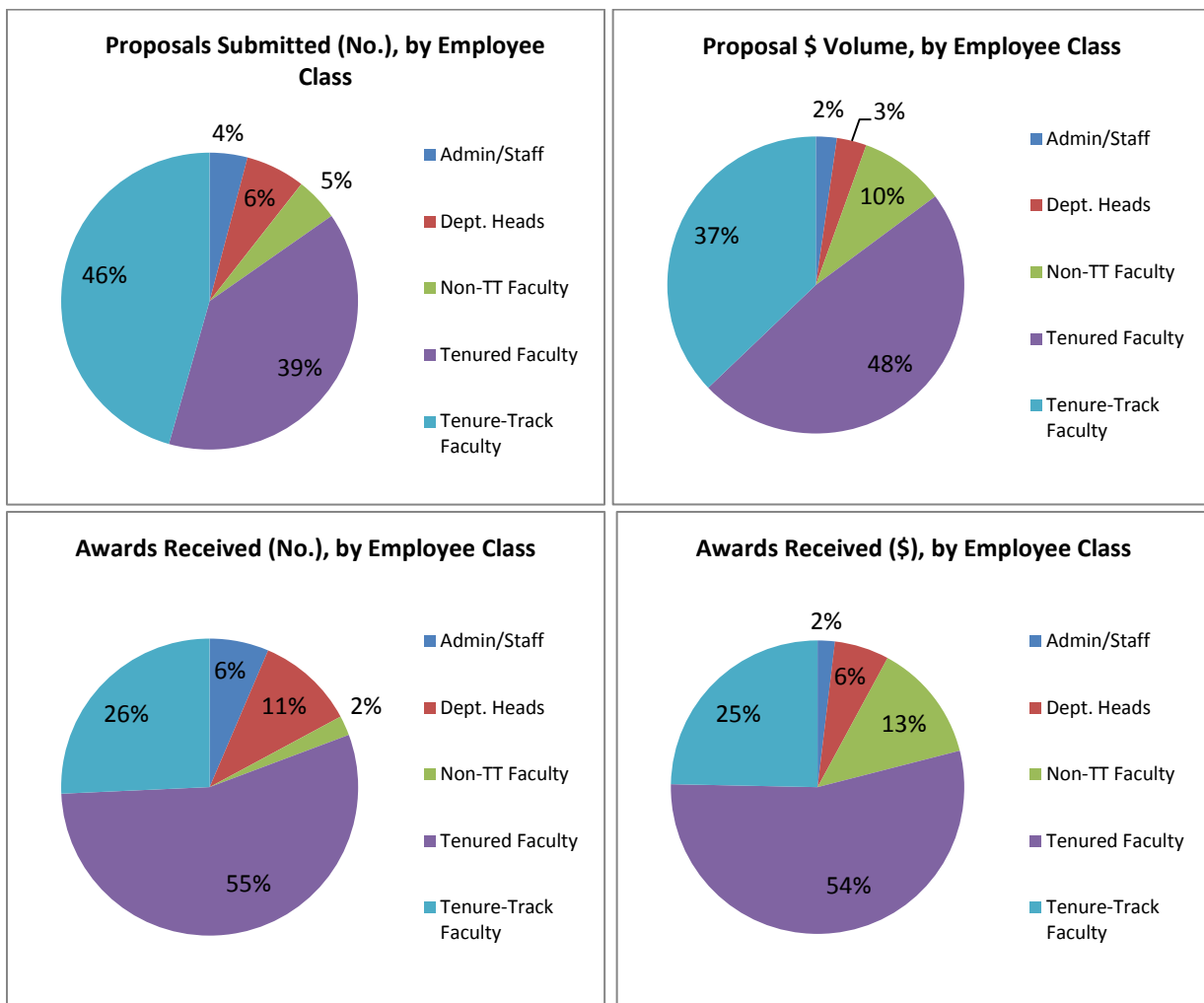


Figure 5-2: Faculty Award Productivity - Overall

Figure 5-2 shows the number of faculty, per department, who received awards in fiscal year 2012 – whether they served as a principal investigator, co-principal investigator, or both.

Worcester Polytechnic Institute						
Number of Faculty Participating as PI or Co-PI on FY 2012 Awards						
(Tenured & Tenure-track Faculty Only)						
Department	# of faculty	# of faculty receiving awards as PI only	# of faculty receiving awards as co-PI only	# of faculty receiving awards as PI and co-PI	Total faculty receiving awards	Overall participation rate
Arts & Sciences						
BBT	12	2	1	0	3	25.0%
CBC	9	3	1	0	4	44.4%
CS	24	3	7	6	16	66.7%
H&A	30	0	0	0	0	0.0%
MA	25	6	2	4	12	48.0%
PH	12	1	0	0	1	8.3%
SSPS	12	1	0	1	2	16.7%
A&S Total	124	16	11	11	38	30.6%
Business	19	1	5	1	7	36.8%
Engineering						
BME	9	1	2	4	7	77.8%
CHE	10	4	2	1	7	70.0%
CEE	13	1	1	0	2	15.4%
ECE	18	8	5	0	13	72.2%
FPE	5	3	0	0	3	60.0%
ME	29	11	1	5	17	58.6%
Engineering Total	84	28	11	10	49	58.3%
IGSD	2	1	0	0	1	50.0%
Totals	229	46	27	22	95	41.5%
STEM Depts	178	44	22	21	87	48.9%

Figure 5-3: Faculty Proposal Participation - Overall

Figure 5-3 shows the number of faculty, per department, who submitted proposals in fiscal year 2012 – whether as a principal investigator, co-principal investigator, or both. Preliminary proposals are not counted in this report.

Department	# of faculty	# of faculty submitting proposals as PI only	# of faculty submitting proposals as co-PI only	# of faculty submitting proposals as PI and co-PI	Total faculty submitting proposals	Overall participation rate
Arts & Sciences						
BBT	12	4	0	0	4	33.3%
CBC	9	6	0	0	6	66.7%
CS	24	2	2	13	17	70.8%
H&A	30	2	2	2	6	20.0%
MA	25	5	1	4	10	40.0%
PH	12	2	1	2	5	41.7%
SSPS	12	3	1	3	7	58.3%
A&S Total	124	24	7	24	55	44.4%
Business	19	1	5	4	10	52.6%
Engineering						
BME	9	1	0	8	9	100.0%
CHE	10	3	1	3	7	70.0%
CEE	13	1	3	5	9	69.2%
ECE	18	5	3	8	16	88.9%
FPE	5	1	0	4	5	100.0%
ME	29	6	3	11	20	69.0%
Engineering Total	84	17	10	39	66	78.6%
IGSD	2	1	0	0	1	50.0%
Totals	229	43	22	67	132	57.6%
STEM Depts.	178	39	15	61	115	64.6%

Figure 5-4: Faculty Award Productivity by PI Department

Figure 5-4 shows the award productivity of tenured and tenure-track faculty PIs in each department.

Worcester Polytechnic Institute									
Award Productivity by Department (Tenured & Tenure Track Faculty as PI Only)									
Fiscal Year 2012									
Department	# of faculty	# receiving awards	% receiving awards	# of Awards	Awards Per Faculty Member	Total \$ Awarded	\$ IDC Awarded	\$ Awarded per faculty member	\$ IDC awarded per faculty member
Arts & Sciences									
BBT	12	2	17%	3	0.25	\$ 16,975	\$ 2,200	\$ 1,415	\$ 183
CBC	9	4	44%	9	1.00	1,197,186	380,960	133,021	42,329
CS	24	9	38%	22	0.92	3,293,705	1,054,259	137,238	43,927
H&A	30	0	0%	0	0.00	-	-	-	-
MA	25	10	40%	11	0.44	1,151,024	280,596	46,041	11,224
PH	12	1	8%	2	0.17	260,916	84,545	21,743	7,045
SSPS	12	2	17%	4	0.33	903,626	208,832	75,302	17,403
A&S Totals	124	28	23%	51	0.41	6,823,432	2,011,392	55,028	16,221
Business	19	2	11%	2	0.11	1,461,791	341,215	76,936	17,959
Engineering									
BME	9	5	56%	10	1.11	553,400	62,690	61,489	6,966
CHE	10	5	50%	9	0.90	1,755,878	305,419	175,588	30,542
CEE	13	1	8%	2	0.15	101,584	32,207	7,814	2,477
ECE	18	8	44%	17	0.94	2,132,758	743,956	118,487	41,331
FPE	5	3	60%	4	0.80	386,797	112,550	77,359	22,510
ME	29	16	55%	29	1.00	1,952,268	528,281	67,320	18,217
Engineering Totals	84	38	45%	71	0.85	6,882,685	1,785,103	81,937	21,251
IGSD	2	1	50%	1	0.50	100,000	-	50,000	-
TOTALS	229	69	30%	125	0.55	\$ 15,267,908	\$ 4,137,710	\$ 66,672	\$ 18,069
STEM Departments	178	66	37%	122	0.69	\$ 13,706,117	\$ 3,796,495	\$ 77,001	\$ 21,329

Figure 5-5: Faculty Proposal Activity by PI Department

Figure 5-5 shows the proposal activity of tenured and tenure-track faculty PIs in each department. Preliminary proposals are not counted in this report.

Worcester Polytechnic Institute Proposal Participation by Department (Tenured & Tenure Track Faculty as PI Only) Fiscal Year 2012											
Department	# of faculty	# submitting proposals	Participation rate	# of proposals submitted	Proposals per faculty member	Proposals per participating faculty member	Proposal \$ volume	\$ requested per Faculty member	\$ requested per participating faculty member	Average proposal amount	
Arts & Sciences											
BBT	12	4	33%	11	0.92	2.75	\$ 12,981,912	\$ 1,081,826	\$ 3,245,478	\$ 1,180,174	
CBC	9	6	67%	14	1.56	2.33	7,290,839	810,093	1,215,140	520,774	
CS	24	15	63%	39	1.63	2.60	63,589,317	2,649,555	4,239,288	1,630,495	
H&A	30	4	13%	5	0.17	1.25	1,485,170	49,506	371,293	297,034	
MA	25	9	36%	13	0.52	1.44	10,867,962	434,718	1,207,551	835,997	
PH	12	4	33%	10	0.83	2.50	3,076,360	256,363	769,090	307,636	
SSPS	12	6	50%	13	1.08	2.17	7,525,562	627,130	1,254,260	578,889	
A&S Totals	124	48	39%	105	0.85	2.19	106,817,122	861,428	2,225,357	1,017,306	
School of Business	19	5	26%	6	0.32	1.20	3,289,525	173,133	657,905	548,254	
Engineering											
BME	9	9	100%	34	3.78	3.78	17,726,488	1,969,610	1,969,610	521,367	
CHE	10	6	60%	17	1.70	2.83	6,722,819	672,282	1,120,470	395,460	
CEE	13	6	46%	19	1.46	3.17	3,801,803	292,446	633,634	200,095	
ECE	18	12	67%	39	2.17	3.25	14,721,950	817,886	1,226,829	377,486	
FPE	5	5	100%	15	3.00	3.00	2,959,399	591,880	591,880	197,293	
ME	29	17	59%	70	2.41	4.12	26,397,307	910,252	1,552,783	377,104	
Engineering Totals	84	55	65%	194	2.31	3.53	72,329,766	861,069	1,315,087	372,834	
IGSD	2	1	50%	2	1.00	2.00	663,910	331,955	663,910	331,955	
TOTALS	229	109	48%	307	1.34	2.82	\$ 183,100,323	\$ 799,565	\$ 1,679,819	\$ 596,418	
STEM Departments	178	99	56%	294	1.65	2.97	\$ 177,661,718	\$ 998,100	\$ 1,794,563	\$ 1,093,106	

Figure 5-6: Co-PI Award Productivity

Figure 5.6 shows the number of tenured and tenure track faculty in each department that served as a co-PI on an award received in fiscal year 2012.

Worcester Polytechnic Institute
Co-Principal Investigator Participation on Awards Received in Fiscal 2012
listed by Co-PI's department

Department	# of Awards Joined	# of Dept Personnel Serving as Co-PIs	Total Value of Awards Joined	Average Award Amount
Computer Science	10	16	\$ 4,134,044	\$ 413,404
Mechanical Engineering	9	8	806,229	89,581
Electrical & Computer Engineering	7	7	3,603,896	514,842
Mathematical Sciences	6	6	1,145,575	190,929
Biomedical Engineering	5	6	2,636,156	527,231
School of Business	5	6	2,403,644	480,729
Social Science & Policy Studies	4	2	1,399,654	349,914
Chemical Engineering	2	3	654,672	327,336
Biology & Biotechnology	1	1	1,398,000	1,398,000
Chemistry & Biochemistry	1	1	180,000	180,000
Civil & Environmental Engineering	1	1	68,325	68,325
Other	5	5	425,000	85,000

Figure 5-7: Co-PI Participation in Proposals

Figure 5.7 shows the number of tenured and tenure track faculty in each department that participated as a co-PI on a proposal submitted during fiscal year 2012. Preliminary proposals are not counted in this report.

Worcester Polytechnic Institute
Co-Principal Investigator Participation on Proposals Submitted in Fiscal 2012
listed by Co-PI's department

Department	# of Proposals Joined	# of Dept Personnel Serving as Co-PIs	Total Value of Proposals Joined	Average Proposal Amount
Computer Science	32	17	\$ 37,309,742	\$ 1,165,929
Mechanical Engineering	21	15	21,129,091	1,006,147
Electrical & Computer Engineering	20	12	27,753,465	1,387,673
Biomedical Engineering	18	9	35,300,864	1,961,159
Civil & Environmental Engineering	13	8	4,481,726	344,748
Social Science & Policy Studies	12	4	25,881,021	2,156,752
School of Business	11	11	8,423,390	765,763
Fire Protection Engineering	9	5	2,759,354	306,595
Mathematical Sciences	8	6	12,629,936	1,578,742
Humanities & Arts	7	5	4,002,920	571,846
Chemical Engineering	6	4	4,275,564	712,594
Physics	6	4	14,124,442	2,354,074
IGSD	3	2	676,802	225,601
Biology & Biotechnology	2	1	2,835,007	1,417,504
University Advancement	2	2	1,504,097	752,049
Library Services	2	2	392,723	196,362
K-12 Outreach	2	1	250,000	125,000
Government & Community Relations	1	1	42,925	42,925
Other	6	6	5,468,645	911,441

6. Success of FY2011 proposals

It takes, on average, approximately seven months to receive a funding decision on each proposal that we submit. Because of this, it is still too soon to know how our FY 2012 proposals have fared – almost half are still awaiting a decision. We can, however, look at our proposals from FY 2011. These proposals were submitted prior to June 30, 2011 and have had ample time to be reviewed by the funding agencies.

The success rates for FY 2011 proposals are shown in figure 6-1 below.

Figure 6-1

Worcester Polytechnic Institute
Status of Proposals Submitted in FY 2011
(as of 12/31/2012)

Status	Number	%	\$ Value¹	%
Funded	91	32%	\$ 15,954,051	14%
Declined	163	57%	\$ 87,920,584	78%
Pending	34	12%	\$ 9,211,599	8%
Total	288	100%	\$ 113,086,234	100%

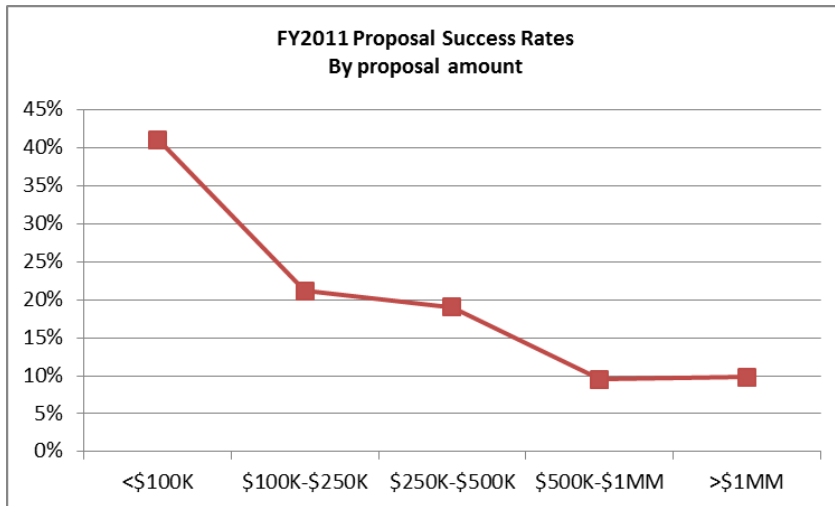
¹ Based on amount of original proposal; assumes full amount will be awarded

It should be noted that, although 32% of proposals were funded, these proposals represented only 14% of the funds requested. Funding rates were generally lower for larger proposals, as illustrated in figure 6-2.

Figure 6-2

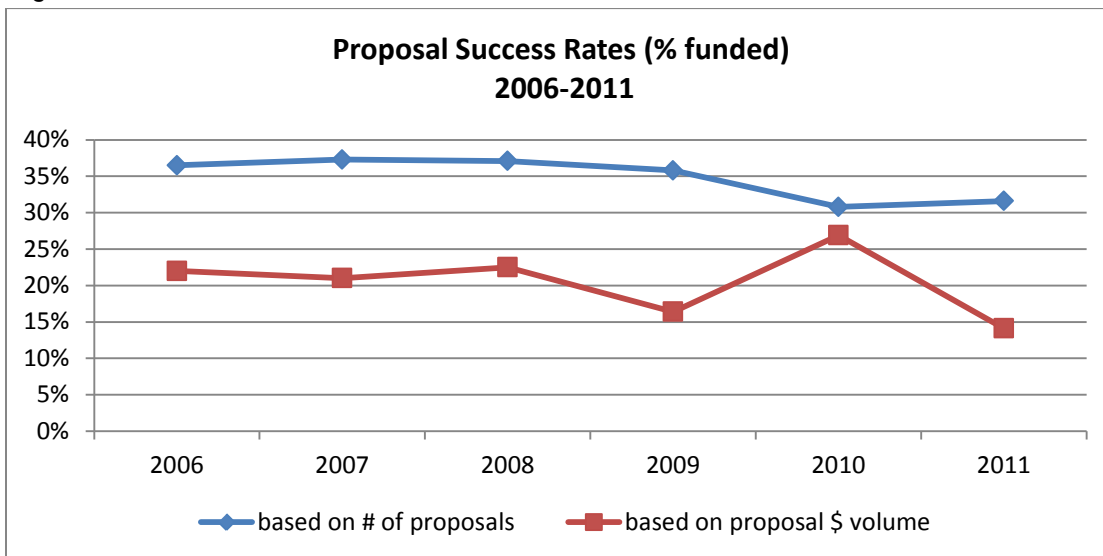
Worcester Polytechnic Institute
Proposal Success Rates, By Proposal \$ Value
Based on \$ amount requested/funded
Proposals submitted July 1, 2010 to June 30, 2011

	<\$100K	\$100K-\$250K	\$250K-\$500K	\$500K-\$1MM	>\$1MM
Awarded	41%	21%	19%	10%	10%
Declined	50%	66%	64%	74%	90%
Pending	9%	13%	17%	17%	0%
Total	100%	100%	100%	100%	100%



Overall, proposal success rates were lower in 2011 than in previous years, as shown in figure 6.3

Figure 6-3



7. Subaward Activity

WPI's sponsored programs activity often involves formal collaborations with outside institutions, usually in the form of subawards/subcontracts. WPI is both a recipient and a provider of subawards. In fiscal year 2012, the subawards we received (i.e. funds allocated to WPI by another institution) accounted for 18.7% of new award dollars. WPI issued subawards amounting to 4.6% of our new award volume.

Figure 7-1

**Worcester Polytechnic Institute
Subaward Activity
FY 2011 and FY 2012**

	<u>2012</u>	<u>2011</u>	<u>% Change</u>
<i>Subawards Received</i>			
Number of subawards	43	49	-12%
Total \$ Value	\$ 3,388,382	\$ 4,622,947	-27%
Average \$ Value	\$ 78,800	\$ 94,346	-16%
<i>% of all awards (based on \$ value)</i>	18.7%	25.6%	
<i>Number of collaborating institutions</i>	29	32	
<i>Subawards Issued</i>			
Number of subawards	15	6	150%
Total \$ Value	\$ 843,462	\$ 815,194	3%
Average \$ Value	\$ 56,231	\$ 135,866	-59%
<i>% of all awards (based on \$ value)</i>	4.6%	4.5%	
<i>Number of collaborating institutions</i>	9	6	

8. Historical Review of Proposals, Awards, and Expenditures

Figure 8-1 below provides a snapshot of all proposal, award, and expenditure totals for the most recent ten years. Figure 8-2 on the following page is a similar report, but the amounts shown are net of the impact of Congressional appropriations (“earmarks”), thus illustrating the results of conventional, peer-reviewed proposals only.

Figure 8-1

Worcester Polytechnic Institute
Ten-Year Historical Summary of Sponsored Program Activity (Including Congressional Funding)
FY2003 (Base Year) to FY2012

Fiscal Year	Proposal Volume				Award Volume				Expenditure Volume ¹			
	No.	Amount	% Change from Prior Yr.	% Change from Base Yr.	No.	Amount	% Change from Prior Yr.	% Change from Base Yr.	Amount	% Change from Prior Yr.	% Change from Base Year	
Base 2003	228	73,472,235			128	10,904,309			9,265,725			
2004	207	72,503,900	-1.3%	-1.3%	122	13,593,899	24.7%	24.7%	11,740,812	26.7%	26.7%	
2005	209	82,590,969	13.9%	12.4%	111	11,488,805	-15.5%	5.4%	11,965,468	1.9%	29.1%	
2006	219	69,308,920	-16.1%	-5.7%	122	16,654,758	45.0%	52.7%	12,645,331	5.7%	36.5%	
2007	217	53,058,847	-23.4%	-27.8%	120	11,436,003	-31.3%	4.9%	11,736,587	-7.2%	26.7%	
2008	274	91,400,387	72.3%	24.4%	126	14,631,997	27.9%	34.2%	12,129,731	3.3%	30.9%	
2009	312	126,584,577	38.5%	72.3%	139	13,706,844	-6.3%	25.7%	12,426,357	2.4%	34.1%	
2010	344	185,350,701	46.4%	152.3%	152	17,374,461	26.8%	59.3%	15,117,369	21.7%	63.2%	
2011	288	113,086,144	-39.0%	53.9%	136	18,072,893	4.0%	65.7%	17,629,987	16.6%	90.3%	
2012	340	207,378,461	83.4%	182.3%	140	18,149,913	0.4%	66.4%	14,819,675	-15.9%	59.9%	

¹Source: Sponsored Programs and Research Accounting files

Figure 8-2

Worcester Polytechnic Institute
Ten-Year Historical Summary of Sponsored Program Activity (Net of Congressional Funding)
FY2003 (Base Year) to FY2012

Fiscal Year	Proposal Volume				Award Volume				Expenditure Volume ¹		
	No.	Amount	% Change from Prior Yr.	% Change from Base Yr.	No.	Amount	% Change from Prior Yr.	% Change from Base Yr.	Amount	% Change from Prior Yr.	% Change from Base Year
Base 2003	226	71,656,738			127	10,077,309			8,590,641		
2004	207	72,503,900	1.2%	1.2%	120	11,784,261	16.9%	16.9%	10,378,145	20.8%	20.8%
2005	203	74,570,618	2.9%	4.1%	108	9,748,383	-17.3%	-3.3%	10,099,745	-2.7%	17.6%
2006	216	65,283,920	-12.5%	-8.9%	117	10,661,472	9.4%	5.8%	9,917,665	-1.8%	15.4%
2007	217	63,058,847	-3.4%	-12.0%	120	11,436,003	7.3%	13.5%	9,254,134	-6.7%	7.7%
2008	272	89,692,387	42.2%	25.2%	123	12,084,997	5.7%	19.9%	11,240,643	21.5%	30.8%
2009	311	124,379,627	38.7%	73.6%	139	13,706,844	13.4%	36.0%	11,519,641	2.5%	34.1%
2010	344	185,350,701	49.0%	158.7%	151	17,129,461	25.0%	70.0%	13,957,224	21.2%	62.5%
2011	287	112,152,541	-39.5%	56.5%	134	17,019,290	-0.6%	68.9%	16,889,260	21.0%	96.6%
2012	340	207,378,461	84.9%	189.4%	139	15,621,290	-8.2%	55.0%	14,372,751	-14.9%	67.3%

¹Source: Sponsored Programs and Research Accounting files

Appendix I: Historical and Supplementary Data

Appendix II contains several supplemental charts and schedules that look back a number of years to provide information about proposals, awards, and expenditures through fiscal year 2012.

Figure A-1-1

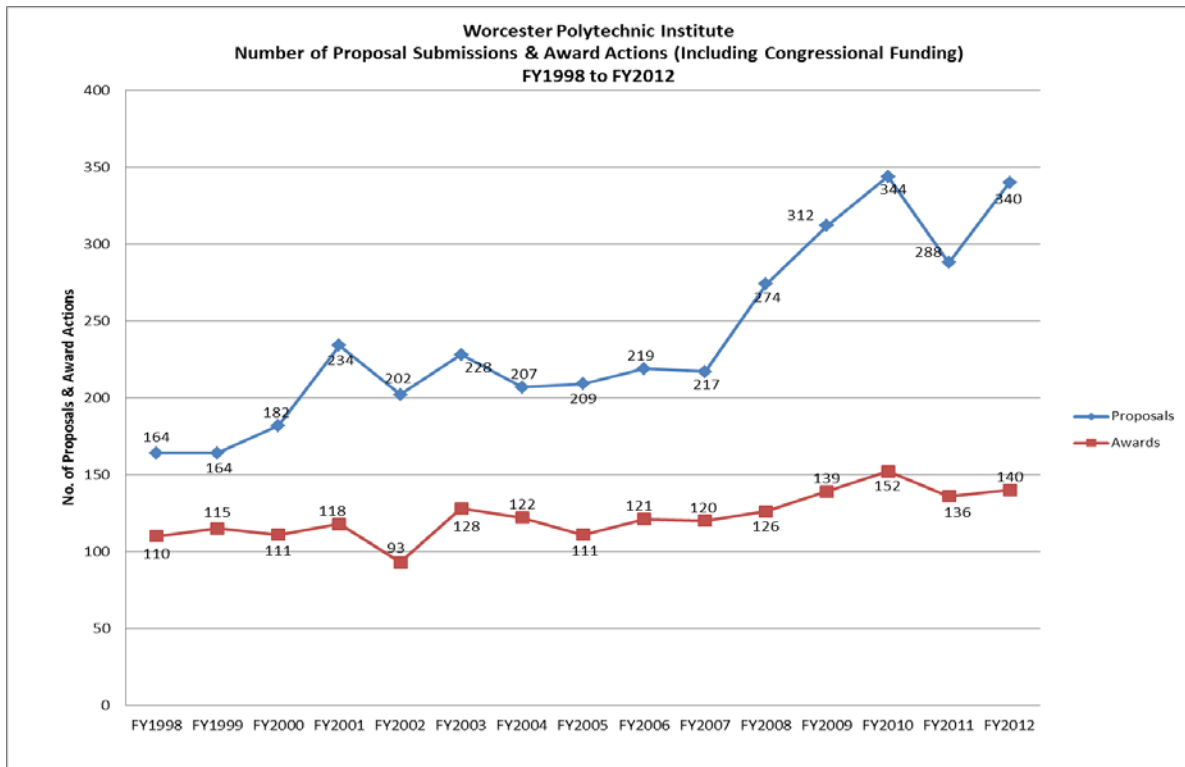


Figure A-1-2

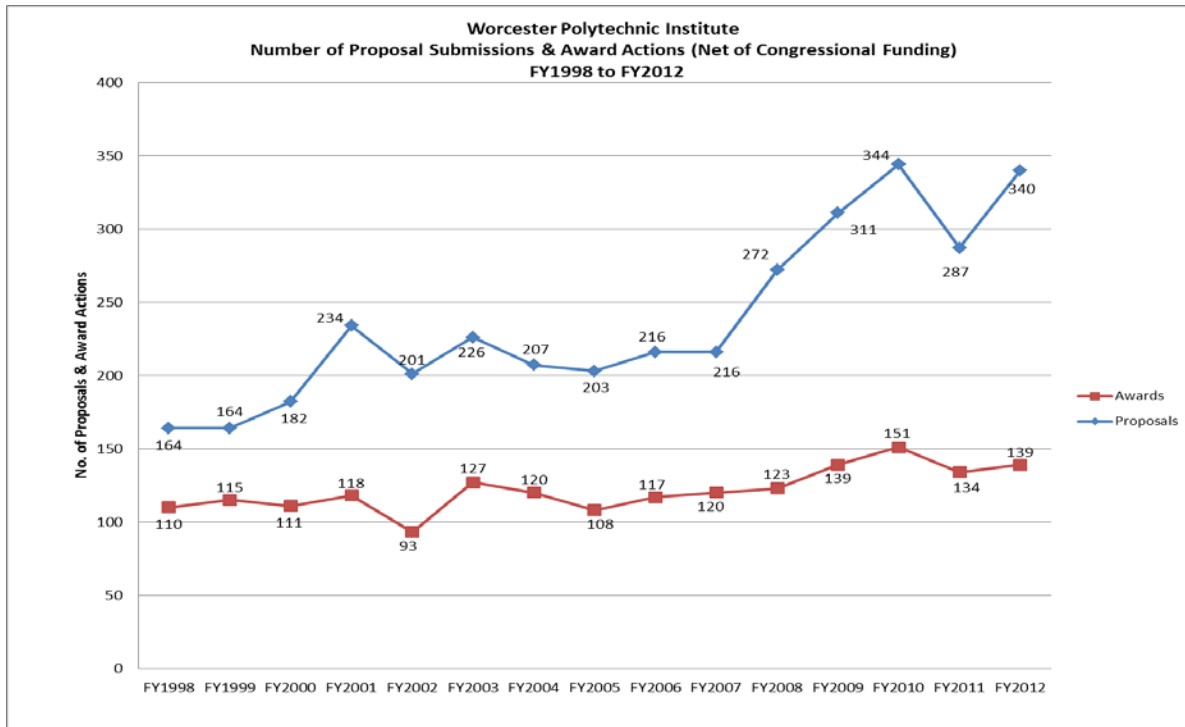


Figure A-1-3

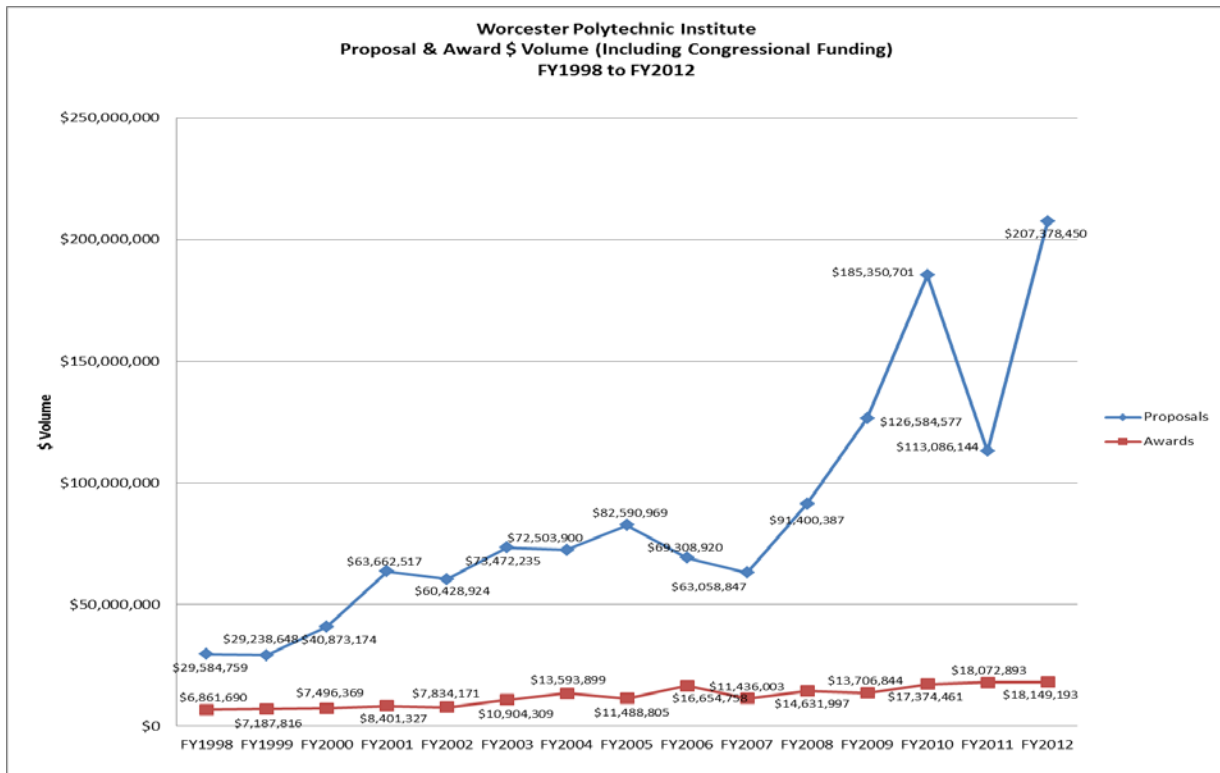


Figure A-1-4

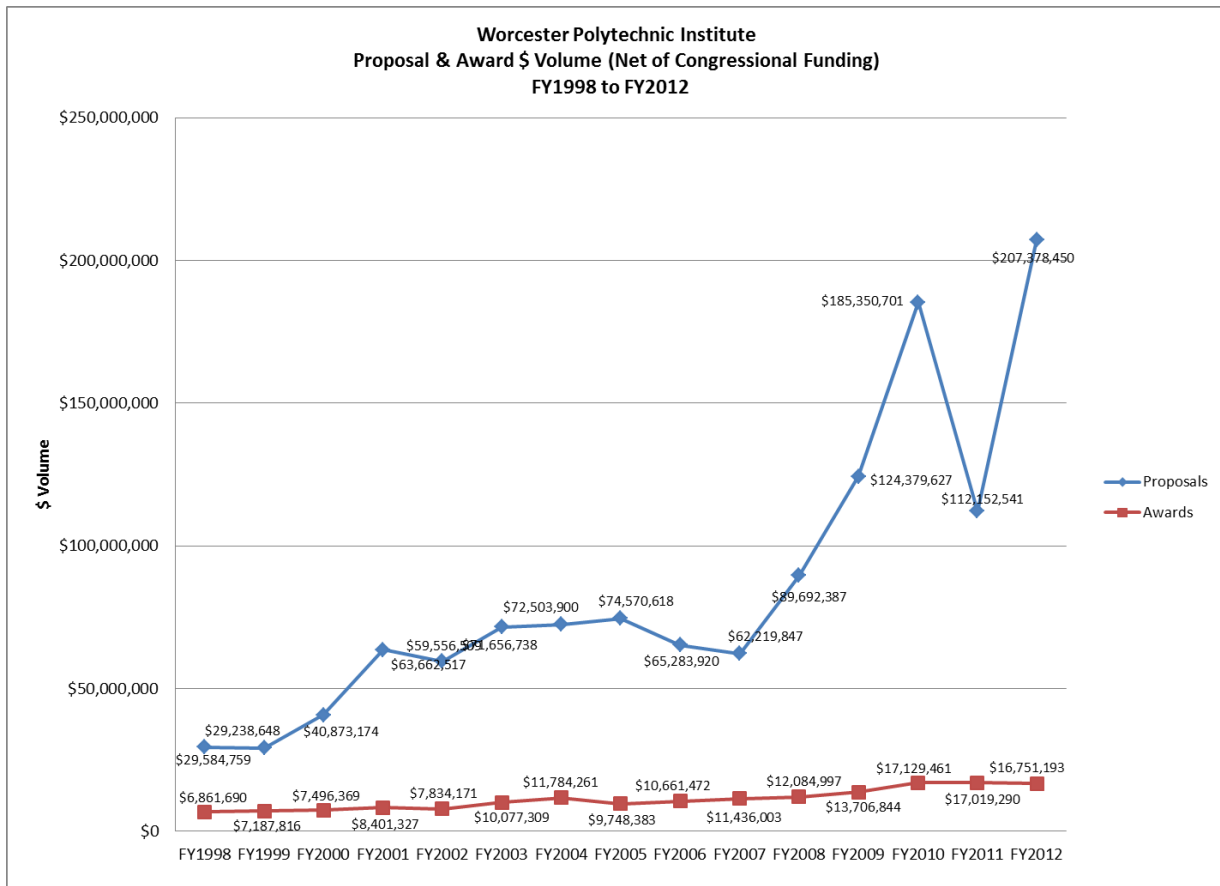


Figure A-1-5

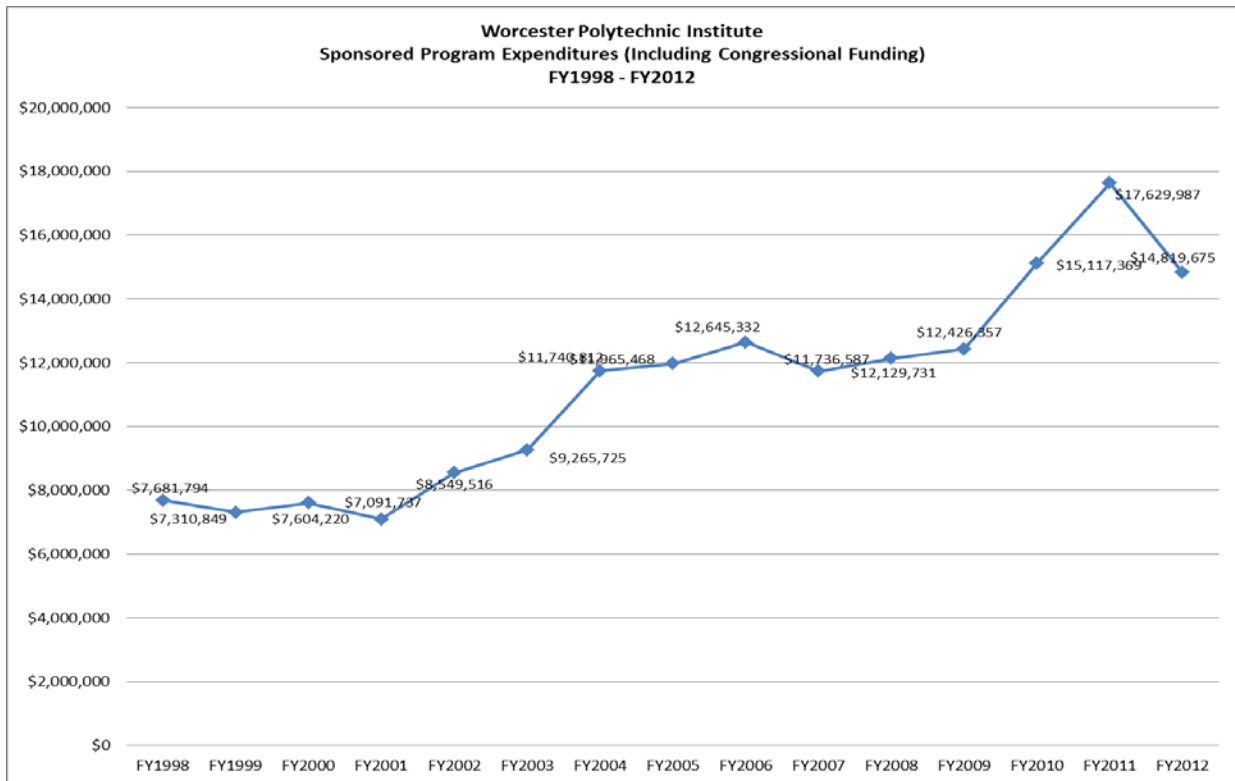


Figure A-1-6

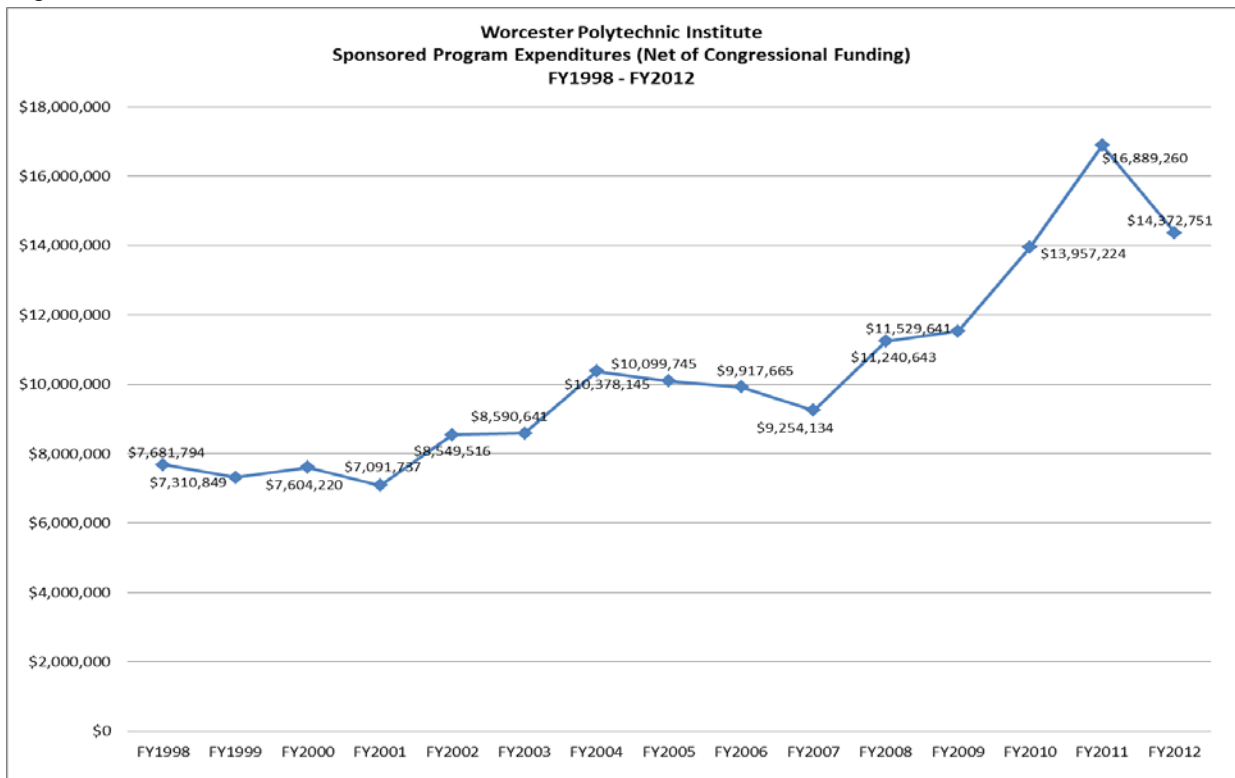
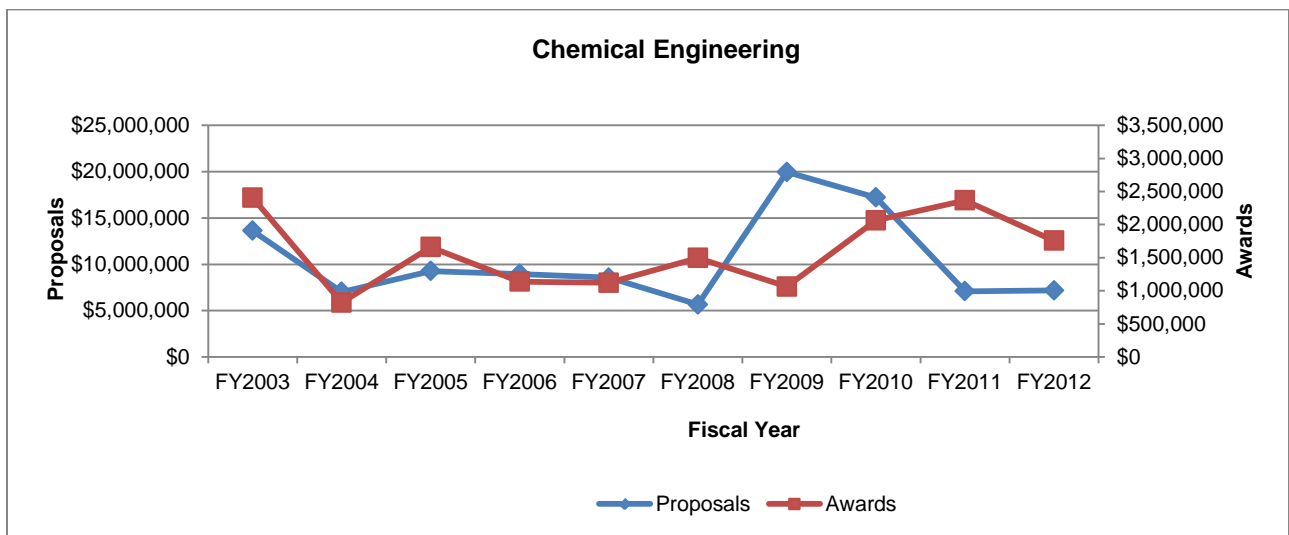
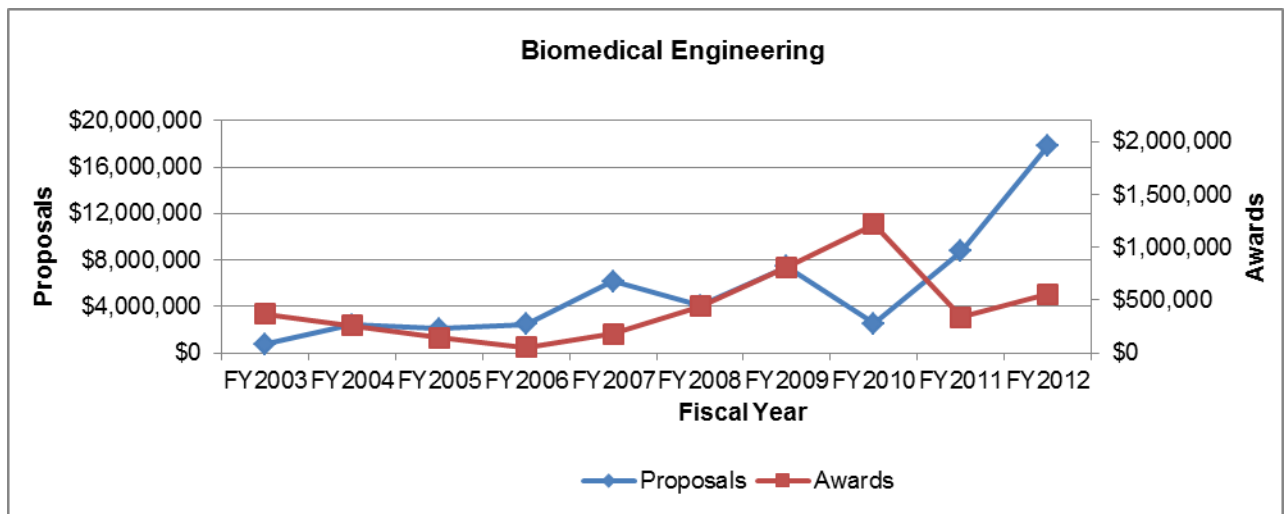
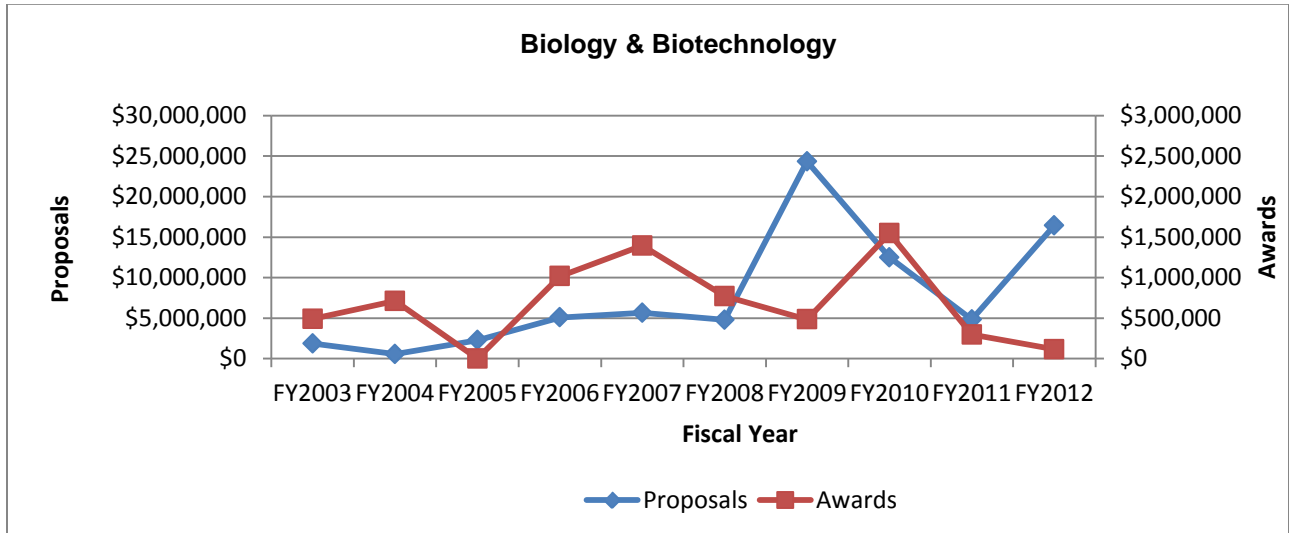
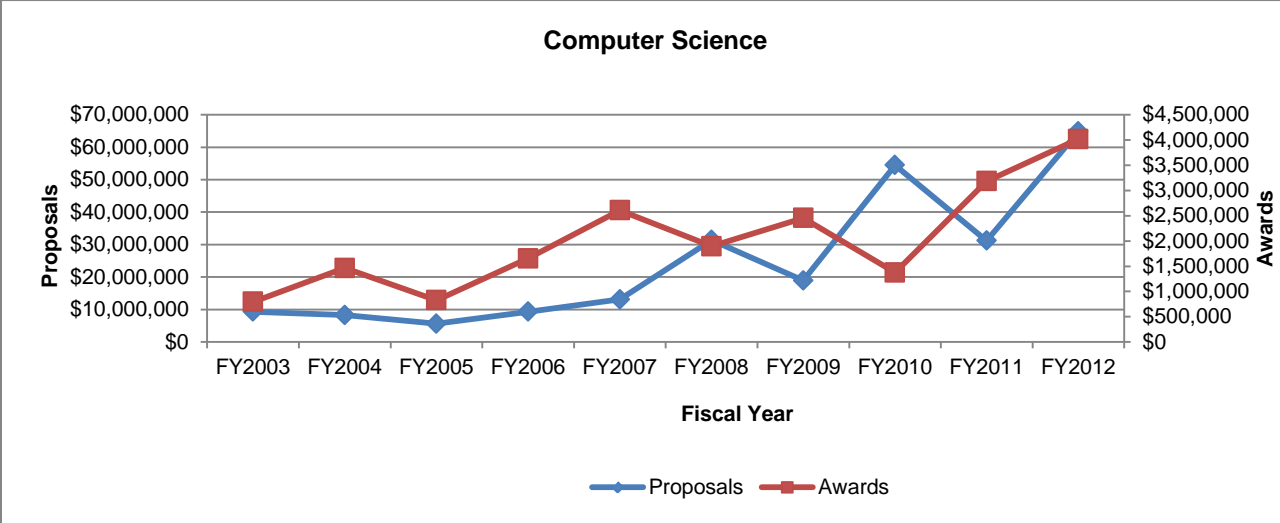
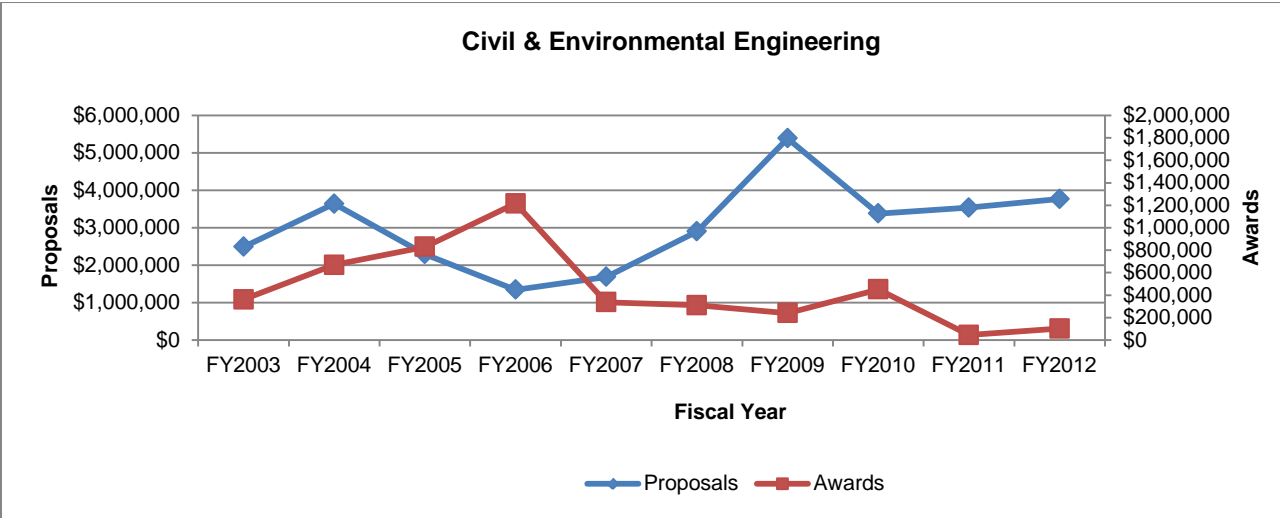
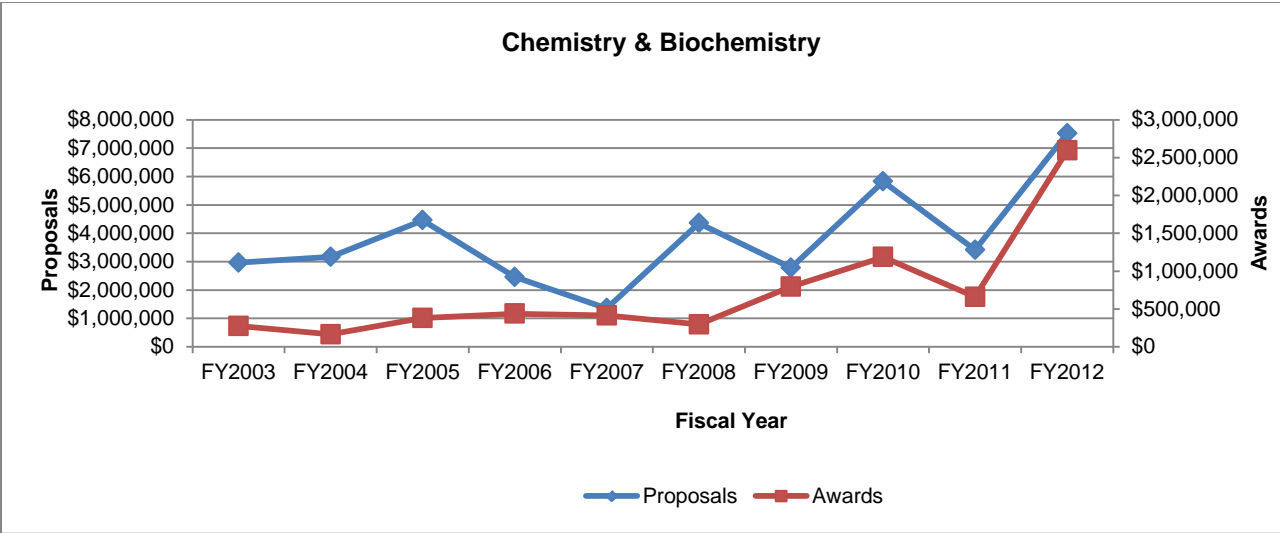
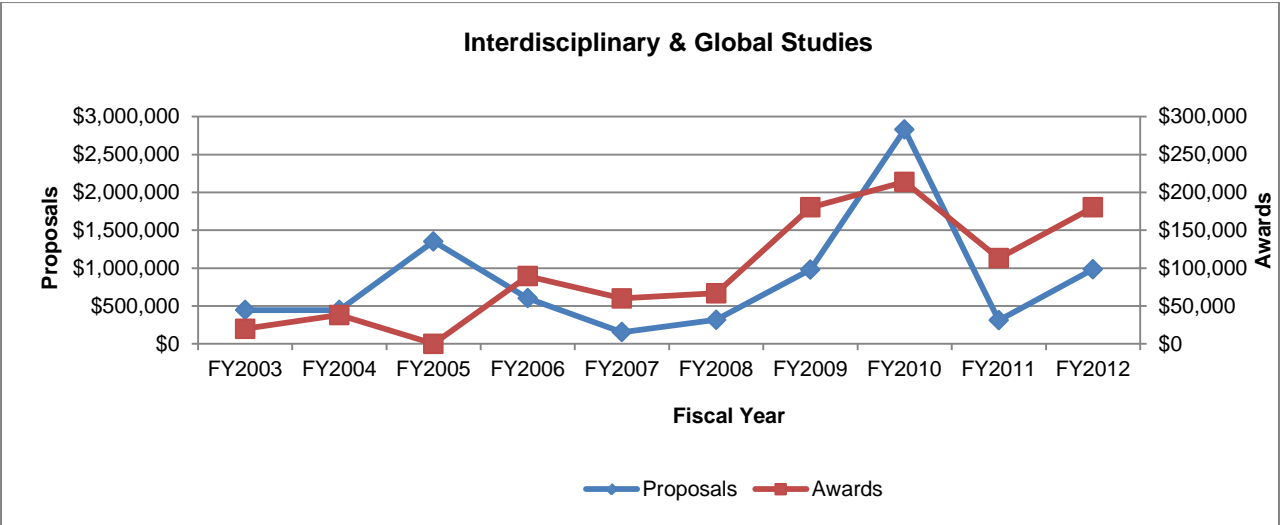
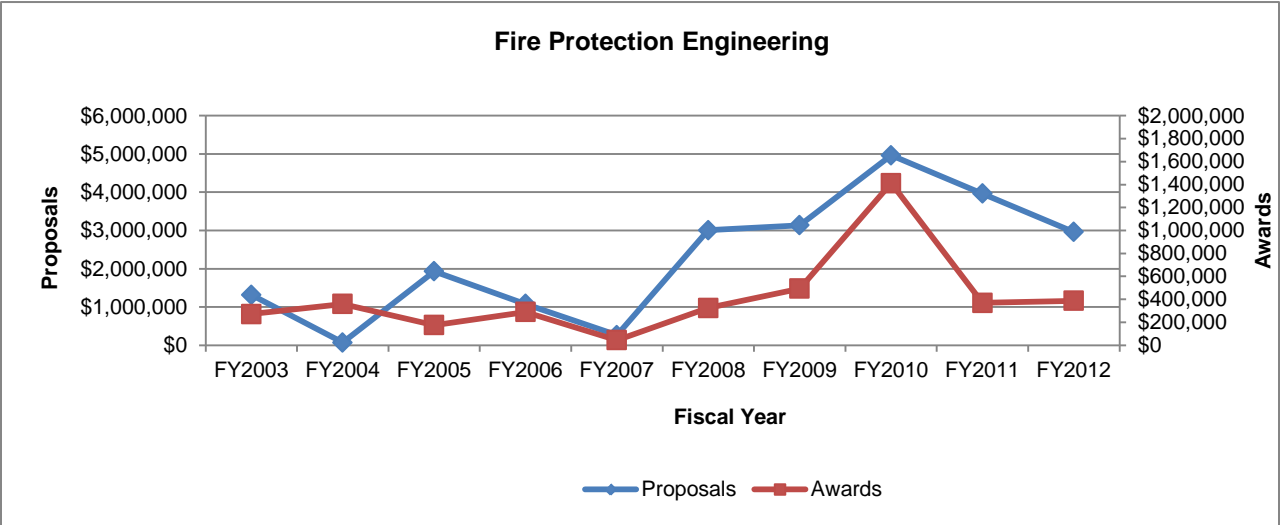
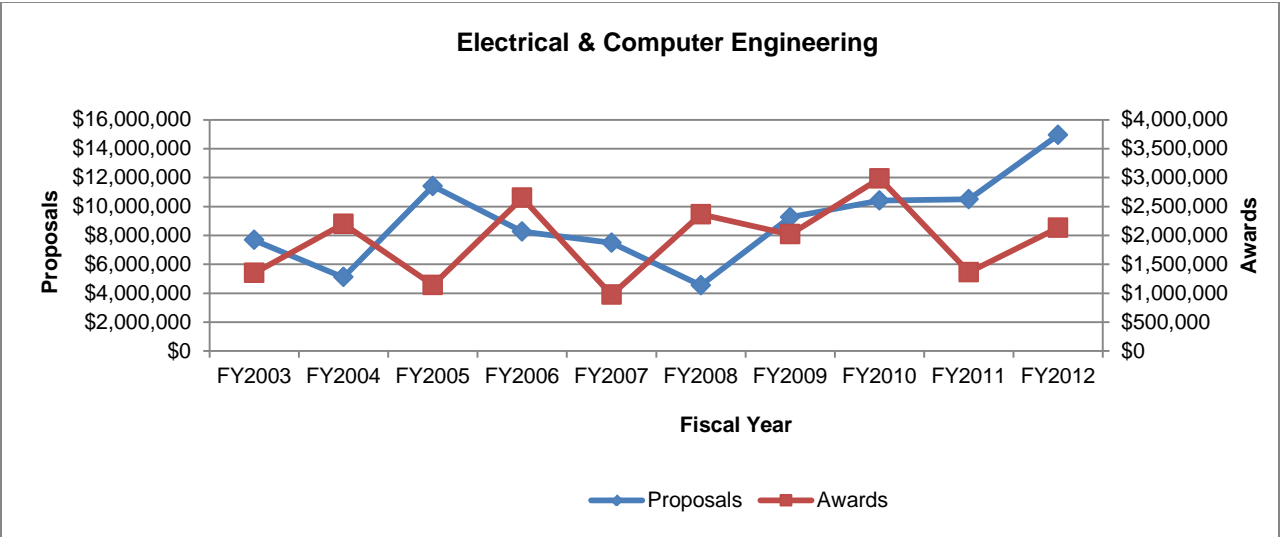
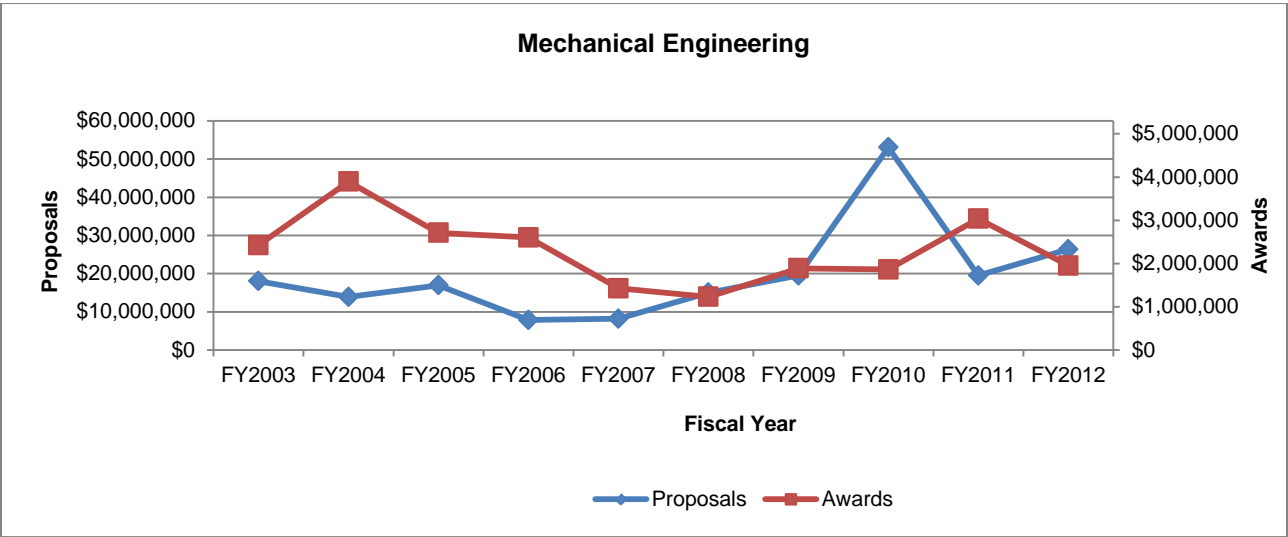
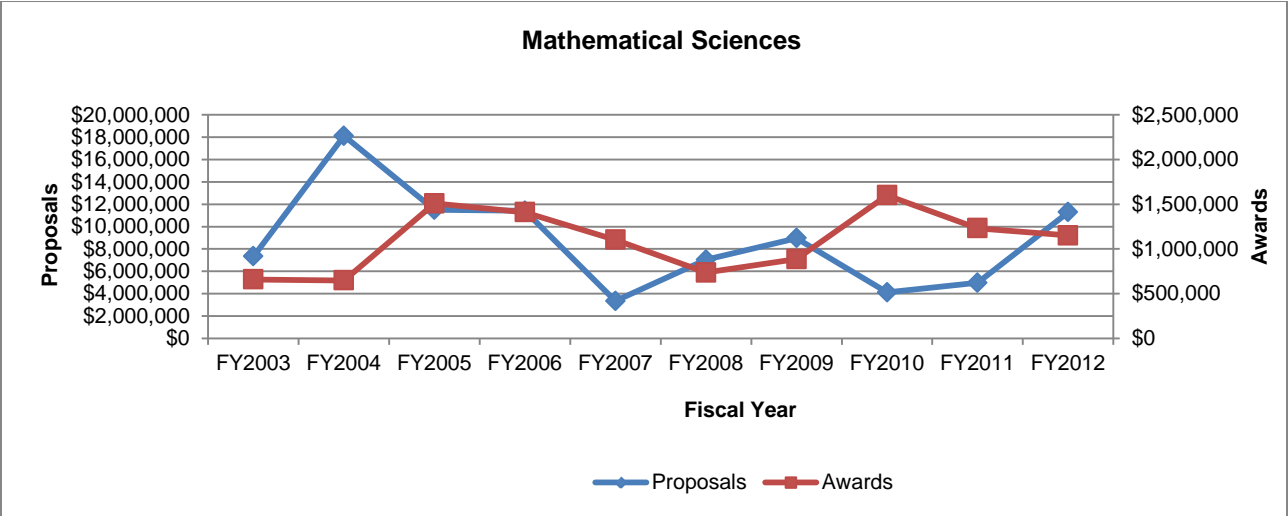
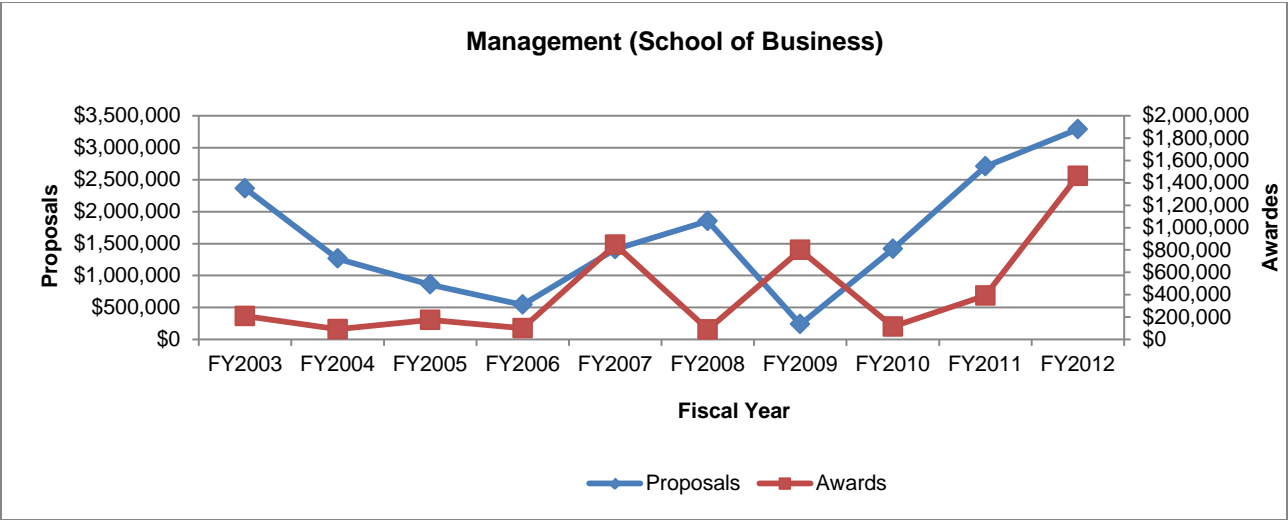


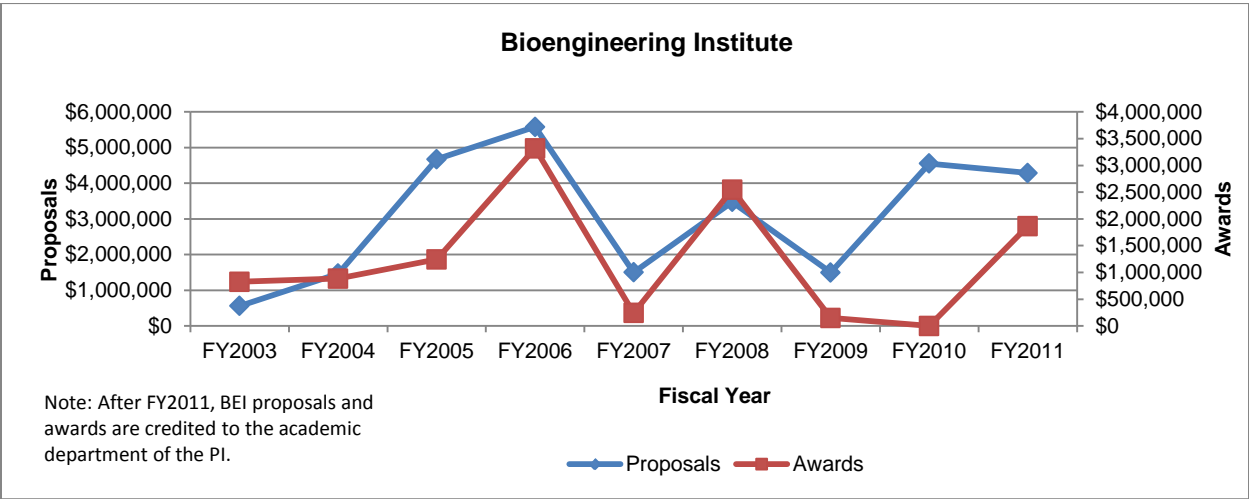
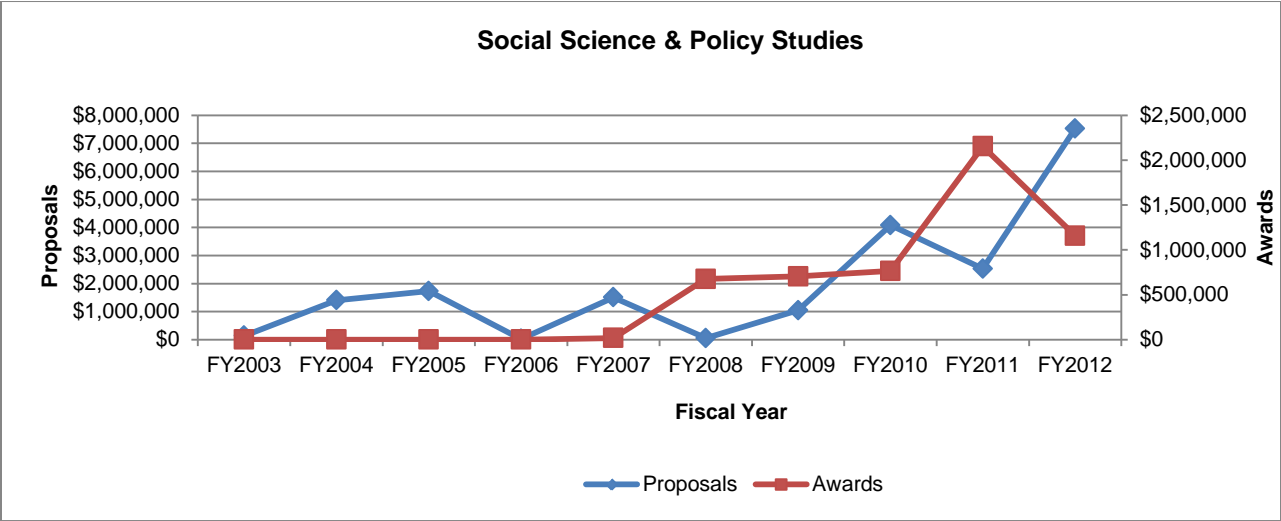
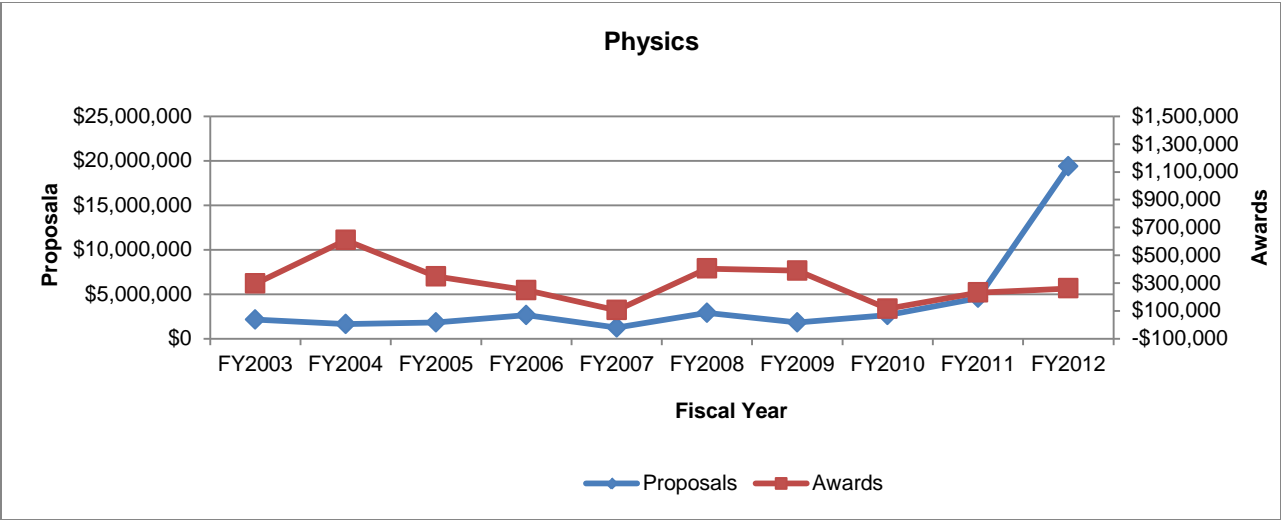
Figure A-1-7: Ten Year Departmental Trend Line Summaries



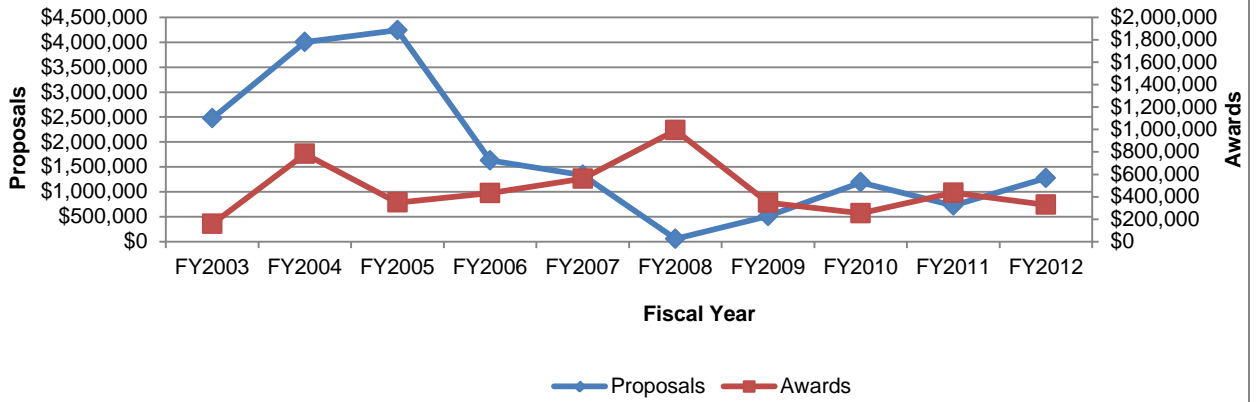








Other Departments



Appendix II: Fiscal Year 2012 Award Listings

**AWARDS RECEIVED
BIOLOGY
JULY 1, 2011 TO JUNE 30, 2012**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Easson, David D.		E.Coli Fermentation Project #1	Xtal BioStructures, Inc.	\$50,600 *
Jain, Sanjay		Fermentation and Purification Optimization of factorH SCR 18-20 Using Pichia Pastoris Expression System	UMass Medical School	\$46,906
Vidali, Luis		REU Supplement RIG: Analysis of the Role of Myosin XI In Plant Cell Polarized Growth	National Science Foundation	\$11,987 *
Weathers, Pamela		Artemisia Annua as a High Value Crop and Weed Control	small farm	\$4,988
Total (8)				\$114,481

* These award totals reflect 4 and 2 increments respectively

**AWARDS RECEIVED
BIOMEDICAL ENGINEERING
JULY 1, 2011 TO JUNE 30, 2012**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Billiar, Kristen	Helen G. Vassallo	REU Site: Integrated Bioengineering Research, Education, and Outreach Experiences for Females and Underrepresented Minorities at WPI	National Science Foundation	\$131,780
Chon, Ki H.	Christopher George Scully Yitzhak Mendelson	Spatiotemporal Organization of Renal Autoregulation	American Heart Association	\$44,000
		Wearable Wireless Sensor Development for Remote Triage: A Collaborative Effort Between WPI and MIT/Lincoln Laboratory	MIT Lincoln Laboratory	\$100,000
		Assessment of the Autonomic Nervous System Utilizing Principal Dynamic Mode Analysis During Mental, Physical and Hyperbaric Stress	Office of Naval Research	\$136,426 *
Gaudette, Glenn R.	John Thomas Favreau	Distributed Auto Regulation of Renal Blood Flow	Simon Fraser University	\$29,250
		In Vivo Correlation of Intimal Hyperplasia with Circumferential Strain in the Vein Graft Wall Using a Murine Model	American Heart Association	\$44,000
Granquist-Fraser, Domhnull		Remote Pupillometry	Charles Stark Draper Laboratory, Inc.	\$15,000
Mendelson, Yitzhak	Paul Krupaker Reddy Dasari	Paul Dasari Dissertation Research Grant: Investigation of the Correlation Between External Markers as Measured by a Visual Tracking System and Internal Motion of Organs as Measured by MRI	UMass Medical School	\$26,472
		MRI In Animal Models	UMass Medical School	\$26,472
Total (10)				\$553,400

* This award total reflects 2 increments

**AWARDS RECEIVED
CHEMICAL ENGINEERING
JULY 1, 2011 TO JUNE 30, 2012**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Camesano, Terri Anne	Kristen Billiar	RET Site: Inquiry-Based Bioengineering Research and Design Experiences for Middle-School Teachers	National Science Foundation	\$374,818
	Kristen Billiar, Ki H. Chon, Glenn R. Gaudette, Francis Hoy	IGERT: Training Innovative Leaders in Biofabrication	National Science Foundation	\$595,352
		Biofilm Formation in Pseudomonas Fluorescens	Dartmouth College	\$14,839
		Molecular Scale Characterization of the Mechanism of Action of Antimicrobial Peptides on Lipid Membranes Using Quartz Crystal Microbalance with Dissipation	US Army Natick Soldier RD&E Center	\$66,299
		Role of Lipopolysaccharide Properties of Adhesion of Pseudomonas Aeruginosa	Dartmouth College	\$7,594
Datta, Ravindra		Supported Molten Salt Electrolyte (SMSE) Unitized Regenerative Fuel Cell (URFC) for Distributed Power Grids	InfoSciTex Corporation	\$35,804
DiBiasio, David		Environmental Compliance & Special Waste Oil Monitoring & Analysis of Shipboard Waste Systems	U. S. Coast Guard	\$6,500
Ma, Yi Hua	Nikolaos K. Kazantzis	Engineering Design of Advanced H ₂ -Co ₂ Pd and Pd/Alloy Composite Membrane Separations and Process Intensification	Department of Energy	\$505,000
Zhou, Hong Susan	N Aaron Deskins, David DiBiasio	International: Undergraduate Research Opportunities on Water Treatment	National Science Foundation	\$149,672
Total (9)				\$1,755,878

**AWARDS RECEIVED
CHEMISTRY
JULY 1, 2011 TO JUNE 30, 2012**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Argüello, José M.	Kristin K. Wobbe	Structure and Function of Copper Transport ATPases*	National Science Foundation	\$193,323
Burdette, Shawn C		CAREER: Investigation of Biological Signaling with Complexes That Release Zinc Upon Illumination with Light	National Science Foundation	\$513,757
		Collaborative Research:New Ratiometric Fluorescent Indicators for Copper	National Science Foundation	\$120,000
Gericke, Arne		Noncollagenous Protein Interactions in Biomineralization	Hospital For Special Surgery	\$101,500
		Physicochemical Characterization of Lipid Phosphomonoester Group Mediated Cell Signaling Events*	National Science Foundation	\$242,668
Kaminski, George A.		Protein Simulation with a Fast Polarizable Force Field	National Institutes of Health	\$25,938
Lambert, Christopher R.	Kristen Billiar, Edward A. Clancy, Joseph B. Duffy, Raymond L. Page, George D Pins	Neuroprosthetics: Development of Tissue Integration, Control and Sensory Feedback Solution for Neural-Enabled Prosthetic Devices	US Army Medical Research and Materiel Command	\$1,398,000
Total (10)				\$2,595,186

* These award totals reflect 3 increments and 2 increments respectively

**AWARDS RECEIVED
CIVIL & ENVIRONMENTAL ENGINEERING
JULY 1, 2011 TO JUNE 30, 2012**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Mallick, Rajib B.	Mingjiang Tao	Detection of Residual Moisture in Warm Mix Asphalt (WMA), Development of a Proper Test Protocol for Testing of Moisture Susceptability of Warm Mix Asphalt During Mix Design, Use of the Results in a Rational Mix Design System and Use of Relevant Parameters	Department of Transportation - ME	\$68,325
		Evaluation of Bioasphalt for Road Construction STTR Phase 2 - Waste oil Fly Ash Bioasphalt	Washington University	\$33,259
Total (2)				\$101,584

**AWARDS RECEIVED
COMPUTER SCIENCE
JULY 1, 2011 TO JUNE 30, 2012**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Beck, Joseph E.	Neil Heffernan	Taking Advantage of Cognitive Science Principles: Adding to a Computer-Based Tutor an Automatic Reassessment and Relearning System	National Science Foundation	\$749,600
		Intelligent Digital Mathematics Tutoring for K-12 Level	University of Massachusetts Amherst	\$43,790
Chernova, Sonia		CAREER: Towards the Development of Robots that Learn from Everyday People	National Science Foundation	\$108,675
		HCC: Small: Collaborative Research: Cloud Primer: Leveraging Common Sense Computing to Learn Parent-Child Interaction Models for Early Childhood Literacy	National Science Foundation	\$103,472
Claypool, Mark L.	Brian J. Moriarty, Craig A. Shue	Using a Game-like Interface for Automated Penetration Testing	CORE Security	\$58,807
Dougherty, Daniel J.	Kathryn Fisler, Joshua D. Guttman	TC: Small: Analysis for a Cloud of Policies: Foundations and Tools	National Science Foundation	\$499,598
Fisler, Kathryn	Daniel J. Dougherty	Seeing Clearly Through a Cloud of Policies	Google, Inc.	\$55,000
	Ryan Shaun Baker	SHF: Small: User Studies to Improve Novice Programming	National Science Foundation	\$287,561 *
		BPC-DP: Deploying a Vertically-Integrated Computing Curriculum to At-Risk Students	National Science Foundation	\$16,000
Gennert, Michael A.	Allen H. Hoffman, John M. Sullivan	Patient Motion Detection and Compensation in SPECT	UMass Medical School	\$4,108
	William R. Michalson	Advanced Bayesian Methods for Autonomous Surface Navigation	Autonomous Exploration, Inc.	\$200,000
Heffernan, Neil	Janice Gobert, George T. Heineman, Robert W. Lindeman, Murali Mani, Gary F. Pollice, Carolina Ruiz, Elke A. Rundensteiner	PIMSE: A GK-12 Partnership Implementing Mathematics & Science Education (PIMSE):Assisting Middle School Use of Tutoring Technology in the Classroom	National Science Foundation	\$426,596
		ASSISTments: Using Texting to Support Formative Assessment to Improve Student Achievement	Texas Instruments, Inc.	\$10,000
		Efficacy of ASSISTments: Evaluation of a Computer-Supported Nightly Homework and Reporting System	SRI International	\$320,811
		National Center for Cognitive and Mathematics Instruction (NCCMI)	WestEd	\$194,158 *
Rundensteiner, Elke A.		Complex Event Stream Analysis for Real-Time Business Intelligence Services	Hewlett-Packard Company	\$15,000
		NSF REU Supplement for "III:Small: Query Mesh- A Novel Paradigm for Query Processing"	National Science Foundation	\$8,000
		NSF REU Supplement for "III:Small:Complex Event Analytics"	National Science Foundation	\$8,000
		Student Travel Grants for US Graduate Students to Participate in EDBI/ICDT	National Science Foundation	\$20,000

AWARDS RECEIVED
COMPUTER SCIENCE (continued)
JULY 1, 2011 TO JUNE 30, 2012

Sidner, Candace L.	Charles Rich	HCC: Large: Collaborative Research: Always-On Relational Agents for Social Support of Older Adults	National Science Foundation	\$724,137
Ward, Matthew Oliver	Huong N. Higgins, Elke A. Rundensteiner	III:CGV:Small: Model-Driven Visual Analytics on Streams	National Science Foundation	\$164,529
Total (23)				\$4,017,842

*These award totals both reflect 2 increments

**AWARDS RECEIVED
ELECTRICAL & COMPUTER ENGINEERING
JULY 1, 2011 TO JUNE 30, 2012**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Brown, Donald R.		Distributed MIMO Techniques	Raytheon BBN Technologies	\$202,547 *
		Synchronization and Pointing Techniques for Precision Electronic Warfare	Raytheon BBN Technologies	\$50,007
Duckworth, R. James	David Cyganski	Three-Dimensional Modeling to Support Indoor Location - Real-Time Image Capture System	Astrium Services	\$109,410
Huang, Xinming	Edward A. Clancy, Susan M. Jarvis	Customizable Drowsiness Control Center	Cornell University	\$2,500
Lou, Wenjing		CSR: Small: Collaborative Research: Engineering Secure Data Computation Outsourcing in Cloud Computing	National Science Foundation	\$80,000
		NeTS: Small: Collaborative Research: Mobile Content Distribution in Vehicular Ad Hoc Networks	National Science Foundation	\$272,109
Orr, John A.	Alexander E. Emanuel	Analysis, Outreach, and Curriculum Development for Distributed Energy Storage System Demonstration	Premium Power Corporation	\$495,000
	Linda Carre Looft	The Institute for Energy and Sustainability	Massachusetts Clean Energy Center	\$120,000
Padir, Taskin	Sonia Chernova, Michael A. Gennert, Kenneth A. Stafford	Cornell Cup: Interactive Multi-modal Wheelchair Control	Cornell University	\$2,500
		CPS: Medium: Collaborative Research: Holistic Design Methodology for Automated Implementation of Human-in-the-Loop Cyber-Physical Systems	National Science Foundation	\$400,000
		Draper Laboratory Fellow Program	Charles Stark Draper Laboratory, Inc.	\$25,603
		ORYX 2.0: A Planetary Exploration Mobility Platform	MathWorks, Inc.	\$5,000
		ORYX: WPI's Entry to RASCAL Exploration Robo-Ops Competition	National Institute of Aerospace	\$17,432 *
Sunar, Berk	William J. Martin	Homomorphic Encryption for Cloud Privacy	National Science Foundation	\$312,888
Wygłinski, Alexander		FPGA Development for Communication System Prototype	MIT Lincoln Laboratory	\$37,762
Total (17)				\$2,132,758

*These award totals both reflect 2 increments

**AWARDS RECEIVED
FIRE PROTECTION ENGINEERING
JULY 1, 2011 TO JUNE 30, 2012**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Meacham, Brian Jay		Quantification of Fire Risk, Performance Levels, Design Fires and Acceptance Criteria for Use in Performance-Based Codes and Fire Safety Design	NIST	\$124,331
Notarianni, Kathy Ann		Firefighter Prevention and Safety Program	CFAI-Risk, Inc.	\$138,698
		FY 2012 Summer Undergraduate Research Fellowship (SURF) NIST Gaithersburg	NIST	\$31,243
Rangwala, Ali S.		Analysis of Mitigation Strategies Associated with Flame Propagation within the Pour Spout of a Portable Gasoline Container	ASTM	\$92,525
Total (4)				\$386,797

AWARDS RECEIVED
IGSD
JULY 1, 2011 TO JUNE 30, 2012

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Golding, Dominic Justo, J. Scott		Exhibit Lab: Developing a Community of Practitioners	EcoTarium	\$29,438
		Support of the WPI Cape Town Project Center Sustainable Infrastructure Initiative	GE Foundation	\$100,000
Vaz, Richard Francis		WPI Project Center at MIT Lincoln Laboratory	MIT Lincoln Laboratory	\$50,693
Total (3)				\$180,131

**AWARDS RECEIVED
MATHEMATICAL SCIENCES
JULY 1, 2011 TO JUNE 30, 2012**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Fehribach, Joseph D.	Burt S. Tilley	Collaborative Research: The MPI Workshop and GSMM Camp	National Science Foundation	\$14,656
Martin, William J.		Some Problems on Association Schemes	National Security Agency	\$37,441
Mosco, Umberto	Bogdan M. Vernescu	Fractal Fibers and Singular Homogenization	National Science Foundation	\$283,000
Olson, Sarah D		Mechanisms of Marine Invertebrate Sperm Chemotaxis: From Cellular Signaling to Flagellar Swimming	National Science Foundation	\$99,707
Tang, Dalin	Kristen Billiar, Joseph D. Petruccelli	In Vivo IVUS Image-Based Modeling for Human Coronary Plaque Assessment	National Institutes of Health	\$335,971 *
Tilley, Burt S.		Thermal Transport Models for Layered Materials	Air Force Office of Scientific Research	\$32,994
Vernescu, Bogdan M.		Creating Tomorrow's Professional Mathematicians Workshop	National Science Foundation	\$49,351
Walker, Homer F.		Anderson Acceleration for Fixed-Point Iterations	Department of Energy	\$138,949
Weekes, Suzanne L.	Burt S. Tilley, Zheyang Wu	REU Site: Research Experiences for Undergraduates in Industrial Mathematics and Statistics	National Science Foundation	\$112,814
Wu, Zheyang		Analysis of Deep Sequencing Data to Identify Genes Causative for Neurodegenerative Diseases	UMass Medical School	\$46,141
Total (11)				\$1,151,024

*This award total reflects 2 increments

**AWARDS RECEIVED
MECHANICAL ENGINEERING
JULY 1, 2011 TO JUNE 30, 2012**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Apelian, Diran	Daniel G Backman	Collaborative Research: Center for Resource Recovery and Recycling (CR3)	National Science Foundation	\$154,000 *
	Makhlouf M. Makhlouf	Commercially Viable, Low Cost, and Energy Efficient Processing of Semi-Solid Aluminum Alloys	Advanced Technology Institute	\$120,000
Bar-On, Isa	Sharon Johnson, Diane M. Strong	New England Healthcare Engineering Partnership (NEHCEP)	U.S. Dept. of Veterans Affairs	\$338,273 *
Blandino, John J.	Nikolaos A. Gatsonis	Characterization and Modeling of a High-Current Negative Hydrogen Ion Source	Busek Company, Inc.	\$190,410
		Characterization of EHD Pumping for Embedded System Cooling	United Technologies Research Center	\$31,529
Brown, Christopher A.		Decision Assisting Software	Supfina Machine Company	\$24,954
Demetriou, Michael A.	Nikolaos A. Gatsonis	Detection of a Moving Gas Source and Estimation of its Concentration with a Sensing Aerial Vehicle: Integration of Theoretical Controls and Computational Fluid	Air Force Office of Scientific Research	\$118,271
Demetry, Chrysanthe	Dennis D. Berkey	ORGANIZATIONAL: Camp Reach: An Exemplary Mentoring Scaffold Producing Talent in STEM	National Science Foundation	\$25,000
Fischer, Gregory S.	Hao Su	Quantification of Robot-Assisted Needle Placement for MRI-guided Transperineal Prostate Interventions	American Society for Quality	\$7,822
		Enabling Technologies for MRI-Guided Prostate Interventions	Brigham & Women's Hospital	\$173,761
		Haptic Training and Interventional System for MRI-Guided Percutaneous Needle Placement	Link Foundation	\$25,000
		MRI Robot Controller Development	MIT	\$12,500
Furlong-Vazquez, Cosme		Opto- Mechanical Characterization of MEMS Sensor by Digital Holographic Interferometry	Agiltron, Inc.	\$40,000
		Pulsed Shearography and Shape Measurements	Trillion Quality Systems	\$117,507
Gatsonis, Nikolaos A.		A Multilevel Smooth Dissipative Particle Dynamics Computational Method for Parallel Simulation of Complex 3D Mesoscale Flows	Air Force Office of Scientific Research	\$89,572
Lados, Diana A.		CAREER: On the Engineering of Light Metals for Enhanced Dynamic Properties and Fatigue Performance	National Science Foundation	\$105,018
		Fatigue Crack Propagation Mechanisms in Cold Spray Materials for U.S. Army Applications	US Army	\$50,088
Makhlouf, Makhlouf M.		Casting Solutions for Readiness	Advanced Technology Institute	\$27,803
Nesting, Stephen		High-Throughput Agile Robotic Manufacturing System for Tile Mosaics	Artaic, LLC	\$45,889
Sisson, Richard D.	Diran Apelian, Reinhold Ludwig	Center for Thermomechanical Processing of Materials by Design	US Army	\$199,940
Sullivan, John M.		Possible Significance of Cholinergic Influence in ADHD	UMass Medical School	\$18,994
Wang, Yan		Bendable Ceramic Paper Membrane as Lithium Ion Battery Separator	Novarials Corporation	\$8,000
		Ultra High Energy Density Microbatteries	MIT	\$20,000

AWARDS RECEIVED
MECHANICAL ENGINEERING (continued)
JULY 1, 2011 TO JUNE 30, 2012

Yagoobi, Jamal	Heat Transfer and Pressure Drop Behavior of Two-Phase on Fin Surfaces with Flow Mixing	United Technologies Research Center	\$7,937
Total (29)			\$1,952,268

* These award totals reflects 5 and 3 increments respectively

AWARDS RECEIVED
PHYSICS
JULY 1, 2011 TO JUNE 30, 2012

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Ram-Mohan, L.R.		Phonon Dynamics in III-Nitrides and Heat Dissipation in High Power Devices	DARPA	\$260,916 *
Total (2)				\$260,916

* This award total reflect 2 increments

**AWARDS RECEIVED
SCHOOL OF BUSINESS
JULY 1, 2011 TO JUNE 30, 2012**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Djamasbi, Soussan		User Experience and Decision Making Research Laboratory	Dynamic Network Services, Inc.	\$262,745
Strong, Diane M.	Emmanuel O. Agu, Peder C. Pedersen, Bengisu Tulu	SHB: Medium: Self-care Management: Patient-Centered Diabetic Wound Care Using Smart Phones	National Science Foundation	\$1,199,046
Total (2)				\$1,461,791

**AWARDS RECEIVED
SOCIAL SCIENCE AND POLICY STUDIES
JULY 1, 2011 TO JUNE 30, 2012**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Baker, Ryan Shaun		Classroom Environment, Allocation of Attention, and Learning Outcomes in K-4 Students	Carnegie Mellon University	\$83,370
		Promoting Robust Understanding of Genetics with a Cognitive Tutor that Integrates Conceptual Learning with Problem Solving	Carnegie Mellon University	\$95,947
		Towards an Engagement Pedometer for Everyone: Unobtrusive Assessment of Engagement and Disengagement	Bill and Melinda Gates Foundation	\$277,043
Gobert, Janice	Ryan Shaun Baker	The Development of an Intelligent Pedagogical Agent for Physical Science Inquiry Driven by Educational Data Mining	US Dept. of Education	\$447,266
	Ryan Shaun Baker, Neil Heffernan, Ryung S Kim, Carolina Ruiz	ASSISTments Meets Inquiry	National Science Foundation	\$254,231
Total (5)				\$1,157,857

**AWARDS RECEIVED
OTHER DEPARTMENTS
JULY 1, 2011 TO JUNE 30, 2011**

Principal Investigator	CoPI(s)	Project Title	Sponsor	Amount
Sisson, Richard D.		Graduate Research Fellowship Program	National Science Foundation	\$82,000
Cyr, Martha	Theresa Schmidt Adams, David P. Leach	Expanding Science, Technology, Engineering, and Mathematics in Grades 6 -12 Using Project Lead The Way Curriculum Programs in MA	Linde Family Foundation	\$100,000
Sisson, Richard D.	NaTonia Trammell	Northeast LSAMP Phase II	University of Massachusetts Amherst	\$80,000
Trammell, NaTonia	Richard D. Sisson	Louis Stokes Alliance for Minority Participation Phase III Grant	University of Massachusetts Amherst	\$66,000
Total (5)				\$328,000
FY2012 Grand Total (140)				<u>\$18,149,913</u>