

**Status on FY2000 Research Funding  
At the University of Missouri**

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January 2002

Institutional Research and Planning  
Office of Planning and Budget  
University of Missouri System  
P&B 2002, Report 1

<http://www.system.missouri.edu/planning>

## EXECUTIVE SUMMARY

This report highlights research funding at the University of Missouri using data provided by the National Science Foundation (NSF). More specifically, it examines research funding at the public AAU institutions and at the four campuses of the University of Missouri. Please note that data from Texas A&M University and SUNY Stony Brook were added to all tables in this report. In previous reports, only the thirty-two public institutions classified as AAU institutions at the time the reports were completed were included.

Data used in this study are from fiscal year 2000. Although more recent data are available for the University of Missouri, this is the most recent data available for all public AAU institutions. References to the “University of Missouri” or the “University” refer to the four-campus system. Trends in research funding have been examined from 1990 to 2000 and from 1995 to 2000.

The key findings include:

### ***Federal Research Expenditures***

- On average, federal research expenditures at the University of Missouri have increased 91% since 1995 and 171% since 1990. This compares to an increase of 28% and 81%, respectively, at the public AAU institutions (Table 1).
- From 1995 to 2000, the University’s market share in federal research expenditures among the public AAU institutions increased from 1.06% to 1.57%. (Table 2).
- In terms of federal research expenditures, the University of Missouri ranked 28<sup>th</sup> among the 34 public AAU institutions in 2000. The University held the rank of 31<sup>st</sup> in 1990 (Table 3).
- Eighteen of the thirty-four public AAU institutions in 2000 relied on one disciplinary area to provide the majority of their federal research expenditures. In each of these eighteen cases, the discipline area was life sciences (Table 4).

### ***Industry-Sponsored Research Expenditures***

- On inspection of the University of Missouri’s Industry-Sponsored Research and Development Expenditures, there appears to be a large decline between 1995 and 1996. New accounting methods were responsible, in part, for this decline. With comparable accounting methods, there has been a steady increase since 1996 (Table 6).
- The University of Missouri funds a higher percentage of its research program (40%-53%, depending on campus) with institutional funds than all but four other public AAU institutions (Table 7).

## **ORGANIZATION**

The report has been organized into the following sections:

Section I:	Federal Research Expenditures (Tables 1–5)
Section II:	Research Expenditures from Industry (Table 6)
Section III:	Research Expenditures by Source of Funds (Table 7)
Section IV:	Definitions and Technical Notes
Appendix A & B:	Research Expenditures and Campus Comparison Groups

## **SECTION I: FEDERAL RESEARCH EXPENDITURES**

The federal research expenditures reported in this section include expenditures classified as science and engineering (S&E) research and development (R&D) funds. When trend data are examined, increases or decreases in funding are noted from 1990 to 2000 and from 1995 to 2000. In addition, a definition of *federal research expenditures* is provided in Section IV: Definitions and Technical Notes.

### **Federal Flow-Through Expenditures**

Beginning in 1996, federal research expenditures for the University of Missouri include federal flow-through expenditures. Originating from a federal agency, these expenditures have been awarded to industry, state agencies in Missouri, foundations, or another college or university and then passed on to the University of Missouri. The University has typically classified these expenditures based on the intermediary (i.e., industry, etc.). In 1996, however, the University of Missouri began classifying these expenditures based on their original source, the federal government. Consequently, the increase in federal research expenditures in fiscal years 1996 to 2000 for the University of Missouri can be partially attributed to this NSF-accepted classification method.

Please note that annual totals in research expenditures for FY1996 and FY1997 were retroactively changed in 1999. Consequently, these revised totals will not match previously published figures for these two fiscal years.

### ***Table 1:***

### ***Public AAU Institutions: Trends in Federal Research Expenditures for Science and Engineering***

Table 1 shows the trend in federal research expenditures for the public AAU institutions and the four campuses of the University of Missouri. Percentage increases in funds are displayed since 1990 and 1995.

- On average, federal research expenditures at the University of Missouri have increased 91% over the past five years and 171% over the past ten years. This compares to an increase of 28% and 81%, respectively, at the public AAU institutions.

The University of Missouri had the most significant percentage gains (91% since 1995 and 171% since 1990) among the public AAU institutions. The University of Colorado, the University of Kansas, and the University of Pittsburgh have also made significant percentage gains among the public AAU institutions.

**Table 1. Trends in Federal Expenditures for Science and Engineering R&D at Public AAU Institutions 1990-2000**

(\$ in thousands)								% increase since 1990	% increase since 1995
Institution	1990	1995	1996	1997	1998	1999	2000		
University of Colorado	116,394	169,666	177,517	192,201	228,342	244,686	300,394	158%	77%
University of Kansas	26,786	42,209	41,858	46,733	50,567	57,272	68,950	157%	63%
University of Pittsburgh	90,700	144,487	149,960	160,833	168,511	194,618	228,155	152%	58%
University of Florida	64,614	79,361	86,973	94,231	106,510	122,296	120,374	86%	52%
U MD at College Park	66,410	94,071	99,688	102,928	129,198	145,081	136,605	106%	45%
University of Virginia	58,801	85,244	75,256	82,488	93,328	108,495	119,243	103%	40%
U of IL Urbana-Champaign	117,168	139,078	145,514	156,366	168,871	185,767	193,490	65%	39%
U of Iowa	79,046	103,115	105,646	108,534	115,312	122,638	140,764	78%	37%
U CA Los Angeles	164,442	201,773	236,635	238,919	233,702	251,999	274,162	67%	36%
U of Washington	203,353	291,284	312,695	320,784	336,748	368,112	389,622	92%	34%
U CA Berkeley	131,717	157,826	168,171	186,349	171,135	191,025	208,338	58%	32%
University of Michigan	180,456	275,956	281,062	296,028	311,450	334,226	364,033	102%	32%
University of Oregon	20,151	23,789	26,411	26,020	27,041	27,336	30,793	53%	29%
SUNY at Buffalo	66,876	75,713	87,813	78,092	76,037	85,490	96,410	44%	27%
U CA Santa Barbara	47,873	63,443	73,400	74,149	68,408	74,026	80,754	69%	27%
U CA Irvine	52,492	69,655	72,994	71,472	65,902	75,505	88,274	68%	27%
SUNY at Stony Brook	55,911	76,505	79,570	86,568	91,531	93,937	96,641	73%	26%
Michigan State University	58,221	77,499	77,243	82,977	81,146	89,835	97,112	67%	25%
Indiana University	57,155	86,041	90,881	96,087	95,840	102,262	107,577	88%	25%
U of NC Chapel Hill	92,468	156,626	157,034	153,985	171,505	182,935	194,794	111%	24%
U TX at Austin	109,593	143,939	147,808	151,954	165,082	164,913	178,889	63%	24%
U WI-Madison	178,862	229,381	233,174	233,760	240,513	249,961	278,629	56%	21%
Pennsylvania State U	136,656	187,481	190,688	185,206	186,274	199,105	226,074	65%	21%
University of Minnesota	143,810	194,819	198,927	200,149	204,741	207,761	229,958	60%	18%
U CA Davis	77,424	122,645	130,188	123,673	114,912	124,463	141,740	83%	16%
U CA San Diego	182,555	284,445	291,917	274,860	262,303	292,007	326,037	79%	15%
University of Arizona	92,920	168,791	154,004	152,221	161,999	178,126	187,161	101%	11%
Rutgers the State U NJ	40,977	72,567	67,588	68,225	69,829	75,664	79,711	95%	10%
Texas A&M University	93,001	136,734	148,675	145,066	144,938	149,151	149,639	61%	9%
Ohio State University	78,878	122,660	118,811	122,582	124,177	135,216	132,219	68%	8%
U of Nebraska at Lincoln	22,686	36,897	32,352	41,269	41,888	36,977	37,831	67%	3%
Iowa State University	34,043	58,766	54,904	52,938	51,196	54,179	59,976	76%	2%
Purdue University	64,464	93,256	91,632	91,969	92,844	95,708	92,010	43%	-1%
Public AAU Institution Average	91,118	129,264	133,545	136,352	140,963	152,145	165,344	81%	28%
University of Missouri:*									
Columbia	24,422	32,420	38,938	43,335	45,448	53,875	65,420	168%	102%
Kansas City	2,767	4,506	5,087	5,380	6,199	7,206	7,490	171%	66%
Rolla	3,863	5,834	7,542	8,080	7,934	8,731	9,804	154%	68%
St Louis	1,167	2,840	3,349	3,650	3,975	4,841	4,523	288%	59%
University Total	32,219	45,600	54,916	60,445	63,556	74,653	87,237	171%	91%

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook are new members of the AAU and have been added to the table above.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and Universities, FY 2000, B-33, <http://www.nsf.gov/sbe/srs/srs02402/start.htm>

\* Federal flow-through funds are included in the University of Missouri figures beginning in FY 1996.

**Table 2:**

***Public AAU Institutions: Market Share Increases and Decreases in Federal Research Expenditures***

An alternative approach to understanding how well the University of Missouri has "competed" with other public AAU institutions is to examine the market share of each institution over time. That is, of the total federal research expenditures secured by the public AAU institutions in a given year, what percentage of that total has each institution secured? How has that institution's market share shifted from year to year? One advantage of market share analysis is that it helps to level the playing field among major and less-than-major players who compete for research dollars. In Table 2, the market share of federal research expenditures has been calculated for the public AAU institutions in 1990, 1995, and 2000.

- Among the public AAU institutions, the market share for the University of Missouri held steady at 1.06% from 1990 to 1995. But since that time, the University's market share has increased from 1.06% to 1.57%.

**Table 2. Market Share Gain or Loss in Federal Expenditures for Science and Engineering R&D at Public AAU Institutions, 1990 to 2000**

Institution	(\$ in thousands)							
	1990		1995		2000		MS +/- since 1990	MS +/- since 1995
	\$	Market Share	\$	Market Share	\$	Market Share		
University of Colorado	116,394	3.83	169,666	3.94	300,394	5.42	1.59	1.48
University of Pittsburgh	90,700	2.98	144,487	3.35	228,155	4.12	1.13	0.76
U of Missouri-Total	32,219	1.06	45,600	1.06	87,237	1.57	0.51	0.52
University of Florida	64,614	2.13	79,361	1.84	120,374	2.17	0.05	0.33
U MD at College Park	66,410	2.19	94,071	2.18	136,605	2.46	0.28	0.28
U of Washington	203,353	6.69	291,284	6.76	389,622	7.03	0.34	0.27
U CA Los Angeles	164,442	5.41	201,773	4.68	274,162	4.95	-0.47	0.27
University of Kansas	26,786	0.88	42,209	0.98	68,950	1.24	0.36	0.26
U of IL Urbana-Champaign	117,168	3.86	139,078	3.23	193,490	3.49	-0.36	0.26
University of Virginia	58,801	1.93	85,244	1.98	119,243	2.15	0.22	0.17
University of Michigan	180,456	5.94	275,956	6.40	364,033	6.57	0.63	0.17
U of Iowa	79,046	2.60	103,115	2.39	140,764	2.54	-0.06	0.15
U CA Berkeley	131,717	4.33	157,826	3.66	208,338	3.76	-0.58	0.10
University of Oregon	20,151	0.66	23,789	0.55	30,793	0.56	-0.11	0.00
U CA Santa Barbara	47,873	1.58	63,443	1.47	80,754	1.46	-0.12	-0.01
SUNY col at Buffalo	66,876	2.20	75,713	1.76	96,410	1.74	-0.46	-0.02
U CA Irvine	52,492	1.73	69,655	1.62	88,274	1.59	-0.13	-0.02
SUNY at Stony Brook	55,911	1.84	76,505	1.77	96,641	1.74	-0.10	-0.03
Michigan State University	58,221	1.92	77,499	1.80	97,112	1.75	-0.16	-0.05
Indiana University	57,155	1.88	86,041	2.00	107,577	1.94	0.06	-0.06
U TX at Austin	109,593	3.61	143,939	3.34	178,889	3.23	-0.38	-0.11
U of NC Chapel Hill	92,468	3.04	156,626	3.63	194,794	3.51	0.47	-0.12
U of Nebraska at Lincoln	22,686	0.75	36,897	0.86	37,831	0.68	-0.06	-0.17
Rutgers the State U NJ	40,977	1.35	72,567	1.68	79,711	1.44	0.09	-0.25
Pennsylvania State U	136,656	4.50	187,481	4.35	226,074	4.08	-0.42	-0.27
Iowa State University	34,043	1.12	58,766	1.36	59,976	1.08	-0.04	-0.28
U CA Davis	77,424	2.55	122,645	2.84	141,740	2.56	0.01	-0.29
U WI-Madison	178,862	5.89	229,381	5.32	278,629	5.03	-0.86	-0.29
University of Minnesota	143,810	4.73	194,819	4.52	229,958	4.15	-0.58	-0.37
Ohio State University	78,878	2.60	122,660	2.85	132,219	2.39	-0.21	-0.46
Texas A&M University	93,001	3.06	136,734	3.17	149,639	2.70	-0.36	-0.47
Purdue University	64,464	2.12	93,256	2.16	92,010	1.66	-0.46	-0.50
University of Arizona	92,920	3.06	168,791	3.92	187,161	3.38	0.32	-0.54
U CA San Diego	182,555	6.01	284,445	6.60	326,037	5.88	-0.13	-0.72
		100.00		100.00		100.00		

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook are new members of the AAU and have been added to the table above.

Market Share (MS): An institution's federal research expenditures in a given year divided by the federal research expenditures for all public AAU institutions in the same year.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and Universities, FY 2000, B-33, <http://www.nsf.gov/sbe/srs/srs02402/start.htm>

***Table 3:***

***Public AAU Institutions: The University of Missouri's Rank in Federal Research Expenditures***

Table 3 ranks the public AAU institutions in terms of federal research dollars secured in 1990 and 2000.

- The University of Missouri ranked 28<sup>th</sup> among the 34 public AAU institutions in 2000. This is an improvement over its 1990 ranking (31<sup>st</sup>).



**Table 3. Federal Expenditures for Science and Engineering R&D: Changes in Rank  
Among the Public AAU Institutions between 1990 and 2000**

(\$ in thousands)

1990			2000		
Rank	Institution	\$	Rank	Institution	\$
1	U of Washington	203,353	1	U of Washington	389,622
2	U of California-San Diego	182,555	2	University of Michigan	364,033
3	U of Michigan	180,456	3	U CA San Diego	326,037
4	U of Wisconsin-Madison	178,862	4	University of Colorado	300,394
5	U of California-Los Angeles	164,442	5	U WI-Madison	278,629
6	U of Minnesota	143,810	6	U CA Los Angeles	274,162
7	Pennsylvania State U	136,656	7	University of Minnesota	229,958
8	U of California-Berkeley	131,717	8	University of Pittsburgh	228,155
9	U of Illinois-Urbana	117,168	9	Pennsylvania State U	226,074
10	U of Colorado	116,394	10	U CA Berkeley	208,338
11	U of Texas-Austin	109,593	11	U of NC Chapel Hill	194,794
12	Texas A&M University	93,001	12	U of IL Urbana-Champaign	193,490
13	U of Arizona	92,920	13	University of Arizona	187,161
14	U of N Carolina-Chapel Hill	92,468	14	U TX at Austin	178,889
15	U of Pittsburgh	90,700	15	Texas A&M University	149,639
16	U of Iowa	79,046	16	U CA Davis	141,740
17	Ohio State U	78,878	17	U of Iowa	140,764
18	U of California-Davis	77,424	18	U MD at College Park	136,605
19	SUNY-Buffalo	66,876	19	Ohio State University	132,219
20	U of Maryland-College Park	66,410	20	University of Florida	120,374
21	U of Florida	64,614	21	University of Virginia	119,243
22	Purdue U	64,464	22	Indiana University	107,577
23	U of Virginia	58,801	23	Michigan State University	97,112
24	Michigan State U	58,221	24	SUNY at Stony Brook	96,641
25	Indiana U	57,155	25	SUNY at Buffalo	96,410
26	SUNY at Stony Brook	55,911	26	Purdue University	92,010
27	U of California-Irvine	52,492	27	U CA Irvine	88,274
28	U of California-Santa Barbara	47,873		University of Missouri-Total	87,237
29	Rutgers, the State U of NJ	40,977	28	U CA Santa Barbara	80,754
30	Iowa State U	34,043	29	Rutgers the State U NJ	79,711
	University Of Missouri-Total	32,219	30	University of Kansas	68,950
31	U of Kansas	26,786	31	U of Missouri Columbia	65,420
32	U of Missouri-Columbia	24,422	32	Iowa State University	59,976
33	U of Nebraska-Lincoln	22,686	33	U of Nebraska at Lincoln	37,831
34	U of Oregon	20,151	34	University of Oregon	30,793

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook are new members of the AAU and have been added to the table above.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and Universities, FY 2000, B-33,  
<http://www.nsf.gov/sbe/srs/srs02402/start.htm>

**Table 4:**  
***Distribution of Federal Research Expenditures by Field***

Table 4 displays the federal research expenditures by discipline area for the University of Missouri and other public AAU institutions.

- In 2000 the majority of federal research funds expended by the public AAU institutions were in the life sciences (53%) followed by engineering (16%), the physical sciences (13%) and environmental sciences (8%).
- Eighteen of the thirty-four public AAU institutions in 2000 relied on one disciplinary area to provide the majority of their federal research expenditures. In every one of these cases the discipline area was life sciences.
- Where Columbia and Kansas City secured 70% and 79% of their federal expenditures from life sciences, respectively, Rolla garnered 73% of its federal funds in engineering. St Louis received federal funds in more evenly dispersed percentages with 26% being in the physical sciences, 42% of its federal funding in life sciences, 15% in psychology and 14% in the social sciences.

**Table 4. Federal R&D Expenditures at the Public AAU Institutions by Science and Engineering Field, FY2000**

<b>Institution</b>	<b>Engi- neering</b>	<b>Physical</b>	<b>Environ- mental</b>	<b>Math &amp; computer</b>	<b>Life sciences</b>	<b>Psy- chology</b>	<b>Social sciences</b>	<b>Other sciences</b>	<b>Total</b>
<b>Row Percentages</b>									<b>(in thousands)</b>
U of Washington	6	5	15	2	69	2	0	0	389,622
University of Michigan	24	5	2	2	55	1	12	0	364,033
U CA San Diego	8	8	22	12	48	1	1	0	326,037
University of Colorado	8	21	19	2	46	2	2	0	300,394
U WI-Madison	15	11	6	3	53	6	5	0	278,629
U CA Los Angeles	11	11	3	3	69	2	1	0	274,162
University of Minnesota	11	8	3	4	71	2	1	0	229,958
University of Pittsburgh	3	5	0	1	87	2	2	1	228,155
Pennsylvania State U	44	12	5	3	30	3	2	1	226,074
U CA Berkeley	27	26	2	3	37	2	3	1	208,338
U of NC Chapel Hill	0	7	3	3	77	2	8	0	194,794
U of IL Urbana-Champaign	30	17	5	22	19	3	2	2	193,490
University of Arizona	16	27	3	3	48	0	3	0	187,161
U TX at Austin	37	23	6	16	14	2	2	0	178,889
Texas A&M University	21	8	41	3	25	1	1	0	149,639
U CA Davis	9	9	2	2	78	1	0	0	141,740
U of Iowa	7	9	0	1	80	2	1	0	140,764
U MD at College Park	30	25	3	9	8	2	22	0	136,605
Ohio State University	16	10	3	2	60	3	6	0	132,219
University of Florida	20	10	2	4	61	3	1	0	120,374
University of Virginia	16	9	4	3	66	2	1	0	119,243
Indiana University	1	16	1	2	70	6	4	0	107,577
Michigan State University	6	26	1	2	53	3	9	0	97,112
SUNY at Stony Brook	8	17	12	5	53	2	1	0	96,641
SUNY at Buffalo	17	5	0	2	70	4	2	0	96,410
Purdue University	34	14	3	5	39	2	3	0	92,010
U CA Irvine	6	13	2	5	69	3	2	0	88,274
U CA Santa Barbara	36	21	22	5	8	2	6	0	80,754
Rutgers the State U NJ	19	16	11	9	35	4	6	0	79,711
University of Kansas	8	9	4	2	68	1	3	5	68,950
Iowa State University	28	8	3	6	38	0	16	1	59,976
U of Nebraska at Lincoln	12	15	19	3	38	0	9	4	37,831
University of Oregon	3	20	6	10	49	8	4	0	30,793
Public AAU Distribution	16	13	8	5	53	2	4	0	
University of Missouri:									
Columbia	13	4	1	1	70	4	7	0	65,420
Rolla	73	24	3	0	0	0	0	0	9,804
Kansas City	0	5	0	10	79	1	4	0	7,490
St Louis	0	26	0	2	42	15	14	0	4,523
University Total	18	7	1	1	61	4	6	0	87,237

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook are new members of the AAU and have been added to the table above.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and University, FY 2000, B-43, <http://www.nsf.gov/sbe/srs/srs02402/start.htm>

**Table 5:**

***Public AAU Institutions: Market Share of Federal Research Expenditures within Each Discipline Area***

Table 5 displays each public AAU institution's market share within the eight discipline areas. The University of Missouri's federal research expenditures from the four campuses are pooled.

- The discipline areas where the University of Missouri secured the most significant market share were in psychology (2.9%) and social sciences (2.6%)
- Market share leaders in each discipline area were: Pennsylvania State University in engineering (11.2%), the University of Colorado in the physical sciences (9.3%), the University of California, San Diego in environmental sciences (17.6%), and the University of Illinois in math and computer science (16.5%). In addition, other leaders by discipline area included the University of Washington in life sciences (9.1%), University Wisconsin-Madison in psychology (13.9%), and the University of Michigan in the social sciences (19.8%).

**Table 5. Market Share in Federal R&D Expenditures by Discipline Area Among the Public AAU Institutions, FY 2000**

Institution	Engi- neering	Physical	Environ- mental	Math & computer	Life sciences	Psy- chology	Social sciences	Other sciences	Total
(\$ in thousands)									
U of Washington	2.8	2.9	14.1	3.1	9.1	6.9	0.6	0.0	389,622
University of Michigan	9.8	2.7	1.3	2.3	6.8	3.4	19.8	0.0	364,033
U CA San Diego	2.8	3.7	17.6	15.3	5.3	3.4	2.0	0.1	326,037
University of Colorado	2.6	9.3	13.6	2.8	4.6	5.0	2.5	8.4	300,394
U WI-Madison	4.7	4.6	4.3	3.0	5.0	13.9	6.5	0.0	278,629
U CA Los Angeles	3.4	4.2	2.1	3.3	6.4	5.1	1.3	0.1	274,162
University of Minnesota	2.8	2.7	1.4	3.6	5.6	4.1	1.3	0.0	229,958
University of Pittsburgh	0.7	1.5	0.1	1.0	6.7	3.0	2.2	7.9	228,155
Pennsylvania State U	11.2	3.9	2.6	2.6	2.3	4.8	2.4	15.4	226,074
U CA Berkeley	6.4	7.8	0.9	2.2	2.6	3.5	2.6	8.0	208,338
U of NC Chapel Hill	0.0	2.0	1.5	2.4	5.1	2.7	6.8	0.0	194,794
U of IL Urbana-Champaign	6.5	4.9	2.5	16.5	1.3	4.3	1.8	17.8	193,490
University of Arizona	3.3	7.2	1.5	2.2	3.1	0.0	2.8	0.0	187,161
U TX at Austin	7.5	6.0	2.5	11.1	0.8	2.3	2.0	0.8	178,889
Texas A&M University	3.5	1.7	14.9	1.8	1.3	1.2	0.8	0.0	149,639
U CA Davis	1.4	1.9	0.5	0.9	3.7	0.8	0.2	0.0	141,740
U of Iowa	1.1	1.8	0.2	0.4	3.8	1.8	0.9	0.3	140,764
U MD at College Park	4.6	4.9	1.1	5.0	0.4	1.9	14.1	0.0	136,605
Ohio State University	2.4	1.8	1.0	1.1	2.7	2.7	3.7	2.1	132,219
University of Florida	2.7	1.8	0.5	1.8	2.5	2.8	0.6	0.0	120,374
University of Virginia	2.1	1.5	1.2	1.4	2.7	2.0	0.4	0.0	119,243
Indiana University	0.1	2.5	0.2	1.0	2.5	4.8	2.2	2.6	107,577
Michigan State University	0.7	3.6	0.1	0.9	1.8	2.0	4.2	0.7	97,112
SUNY at Stony Brook	0.9	2.4	2.8	1.8	1.8	1.9	0.5	0.3	96,641
SUNY at Buffalo	1.8	0.6	0.1	0.9	2.3	2.8	0.8	0.0	96,410
Purdue University	3.5	1.9	0.7	1.8	1.2	1.3	1.4	0.8	92,010
U CA Irvine	0.6	1.7	0.5	1.6	2.1	1.9	0.8	0.0	88,274
University of Missouri-Total	1.8	0.9	0.2	0.6	1.8	2.9	2.6	0.0	87,237
U CA Santa Barbara	3.3	2.5	4.3	1.4	0.2	1.4	2.3	0.8	80,754
Rutgers the State U NJ	1.7	1.8	2.2	2.7	1.0	2.6	2.2	0.4	79,711
University of Kansas	0.6	0.9	0.6	0.5	1.6	0.8	0.9	20.0	68,950
Iowa State University	1.9	0.7	0.5	1.3	0.8	0.1	4.4	4.0	59,976
U of Nebraska at Lincoln	0.5	0.8	1.8	0.5	0.5	0.1	1.5	9.5	37,831
University of Oregon	0.1	0.9	0.5	1.2	0.5	1.8	0.6	0.0	30,793
Public AAU Distribution	882,287	690,823	412,630	257,368	2,940,348	126,891	215,659	17,586	5,543,596

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook are new members of the AAU and have been added to the table above.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and University, FY 2000, B-43, <http://www.nsf.gov/sbe/srs/srs02402/start.htm>

## **SECTION II: RESEARCH EXPENDITURES FROM INDUSTRY**

**Table 6:**  
***Public AAU Institutions: Industry-Sponsored Research Expenditures***

Table 6 shows the growth in industry-sponsored research expenditures for the public AAU institutions from 1990 to 2000 and the gain or loss from 1995 to 2000. The institutions are arranged in descending order based on gain or loss since 1995. Please note that a definition of *industry-sponsored research expenditures* is provided in Section III: Definitions and Technical Notes.

- Ohio State University, University of Florida, and University of California, San Diego show the largest gains in industry-sponsored research expenditures among the public AAU institutions.
- The institutions that lead the public AAU group in terms of industry-sponsored research are Pennsylvania State University (\$64.4 million), University of Washington (\$57.4 million). Ohio State University (\$57.1 million)
- The University of Missouri secured \$6.7 million in industry-sponsored research expenditures in 1999 and 7.7 million in 2000.

**Table 6. Industry-Sponsored R&D Expenditures at Public AAU Institutions 1990 to 2000**

Institution	(\$ in thousands)							\$ Gain/Loss since 1995
	1990	1995	1996	1997	1998	1999	2000	
Ohio State University	14,744	21,827	30,870	36,685	40,401	52,034	57,075	35,248
University of Florida	12,237	10,611	23,532	25,217	21,393	28,183	34,879	24,268
U CA San Diego	9,135	11,363	15,130	19,266	26,814	31,356	34,541	23,178
U TX Austin	3,507	3,257	15,029	29,887	31,326	39,729	24,740	21,483
U of Washington	22,215	36,892	36,180	37,744	38,370	51,319	57,405	20,513
U CA Los Angeles	8,310	14,892	15,788	19,586	27,817	34,404	33,427	18,535
Pennsylvania State U	34,806	50,225	52,771	56,666	63,319	65,698	64,393	14,168
U CA Berkeley	10,892	13,842	15,128	17,125	20,483	21,928	27,851	14,009
U CA Davis	7,461	8,053	9,387	9,362	14,077	16,242	17,891	9,838
U CA Irvine	3,115	9,139	10,391	10,445	15,712	16,539	18,615	9,476
University of Kansas	4,473	8,149	9,356	8,201	8,281	14,393	15,712	7,563
University of Arizona	10,246	15,300	13,106	14,964	16,392	16,660	22,412	7,112
Iowa State University	5,525	8,017	7,407	8,499	13,717	14,905	15,075	7,058
University of Michigan	27,128	28,987	34,975	31,411	33,029	34,432	35,515	6,528
University of Pittsburgh	6,481	8,208	7,880	9,753	10,436	12,990	14,676	6,468
U of Iowa	6,827	11,359	14,862	15,712	17,262	20,778	17,262	5,903
Purdue University	11,632	25,147	25,720	26,090	26,988	28,856	29,997	4,850
U of NC Chapel Hill	2,179	2,403	2,592	3,311	4,860	5,886	6,835	4,432
Michigan State University	4,557	7,853	6,818	6,973	7,250	7,647	11,230	3,377
U WI Madison	12,123	12,948	13,871	14,832	14,371	14,172	16,127	3,179
University of Minnesota	18,086	23,427	23,726	24,196	24,094	23,933	26,392	2,965
U CA Santa Barbara	2,655	2,576	2,988	2,876	3,666	4,742	5,499	2,923
U of Nebraska Lincoln	3,394	3,145	3,465	4,651	4,721	5,466	5,991	2,846
University of Virginia	6,406	15,442	4,552	7,627	12,400	12,989	17,266	1,824
SUNY at Stony Brook	2,426	5,850	5,848	7,119	6,908	7,416	7,567	1,717
University of Colorado	7,426	7,607	8,902	9,403	9,963	9,867	9,291	1,684
Rutgers the State U NJ	6,754	7,797	7,079	8,848	9,038	9,833	8,843	1,046
U of IL Urbana-Champaign	20,762	11,832	12,365	11,761	13,917	12,864	12,693	861
Texas A&M University	26,197	31,452	26,947	31,816	33,674	34,722	31,084	-368
Indiana University	2,316	5,815	5,357	4,242	6,333	4,820	5,384	-431
SUNY at Buffalo	2,118	13,390	13,186	14,480	3,021	5,485	5,590	-7,800
U MD at College Park	14,229	25,431	24,044	5,009	2,127	3,053		
Public AAU Average	10,324	14,445	15,602	16,680	18,193	20,729	22,299	
University of Missouri:								
Columbia	9,130	10,114	3,158	3,777	4,348	3,832	4,007	-6,107
Kansas City	1,383	636	154	348	505	427	660	24
Rolla	2,186	1,316	2,364	1,575	1,361	2,079	2,543	1,227
St Louis	69	409	191	274	273	386	461	52
University Total	12,768	12,475	5,867	5,974	6,487	6,724	7,671	-4,804

Data were unavailable for the University of Oregon and the University of Maryland at College Park.

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook are new members of the AAU and have been added to the table above.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and University, FY 2000, B-38, <http://www.nsf.gov/sbe/srs/srs02402/start.htm>

P&B, January 2002

### **SECTION III:**

#### **RESEARCH EXPENDITURES BY SOURCE OF FUNDS**

Universities have sources other than federal agencies for funding research operations for their institution. These sources include funds from state & local agencies, business & industry, funds that are provided by the institution itself and other funding sources.

**Table 7:**  
***Public AAU Institutions: Sources of Research Expenditures***

Table 7 shows the sources of research expenditures for the public AAU institutions. The institutions are arranged in descending order, based on the institution's percentage of research funds that are provided by the federal government.

- The University of Colorado and the University of Pittsburgh, received over 80% of their research expenditures from the federal government, ranking them at the top among the public AAU institutions.
- The University of Missouri-Columbia receives 41% of the research funds it receives from the federal government.
- The University of Missouri funds a higher percentage of its research program (40% to 53%, depending on campus) with institutional funds than all but one other public AAU institution.



**Table 7. Total R&D Expenditures at the Public AAU Institutions by Source of Funds, FY2000**

<b>Institution</b>	<b>Federal Gov't</b>	<b>State &amp; Local</b>	<b>Industry</b>	<b>Institutional*</b>	<b>Other</b>	<b>Total (\$ in thousands)</b>
University of Colorado	85%	1%	3%	8%	4%	353,528
University of Pittsburgh	83%	1%	5%	10%	1%	275,314
University of Virginia	75%	4%	11%	10%	0%	159,279
U of Washington	75%	2%	11%	12%	0%	522,265
U CA Santa Barbara	72%	2%	5%	17%	5%	112,722
University of Oregon	72%	1%	1%	7%	20%	43,002
University of Michigan	71%	1%	7%	21%		512,641
U TX at Austin	69%	7%	9%	15%		260,713
U of Iowa	64%	3%	8%	25%		219,156
U CA San Diego	63%	5%	7%	17%	9%	518,559
U CA Los Angeles	62%	4%	8%	27%		443,909
SUNY at Buffalo	61%	4%	4%	31%		157,194
U CA Irvine	59%	4%	12%	18%	7%	149,869
SUNY at Stony Brook	57%	3%	4%	29%	7%	168,522
U MD at College Park	57%	20%	0%	22%		240,454
University of Arizona	57%	3%	7%	34%		330,834
U WI-Madison	56%	8%	3%	32%		496,077
Pennsylvania State U	54%	4%	15%	27%	0%	421,367
U of Illinois Urbana-Cham	54%	13%	4%	29%	1%	361,118
Indiana University	50%	1%	3%	43%	3%	215,009
University of Kansas	50%	4%	11%	34%	1%	138,544
U CA Berkeley	44%	14%	6%	35%	2%	477,503
Michigan State University	42%	18%	5%	30%	5%	232,363
U of Missouri Columbia	41%	11%	3%	40%	6%	158,861
U CA Davis	40%	9%	5%	41%	5%	350,862
Ohio State University	40%	19%	17%	24%		330,855
University of Florida	39%	22%	11%	27%	0%	304,912
Purdue University	39%	13%	13%	35%		234,312
Texas A&M University	38%	28%	8%	26%		389,345
Rutgers the State U NJ	38%	12%	4%	41%	4%	209,881
Iowa State University	31%	25%	8%	24%	13%	196,641
U of Nebraska at Lincoln	29%	4%	5%	62%		128,901
University of Minnesota	13%	3%	2%	4%	78%	1,717,184
U of NC Chapel Hill	13%	1%	0%	3%	82%	1,500,168
Public AAU Average	53%	8%	7%	25%	12%	
Columbia	41%	11%	3%	40%	6%	158,861
Kansas City	38%	0%	3%	53%	5%	19,647
Rolla	38%	1%	10%	42%	9%	25,968
St Louis	49%	2%	4%	46%	3%	9,898

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook are new members of the AAU and have been added to the table above.

Institutional funds include: 1) institutionally financed funds and 2) unreimbursed costs.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and University, FY 2000, B-36, <http://www.nsf.gov/sbe/srs/srs02402/start.htm>

P&B, January 2002

## **SECTION IV: DEFINITIONS AND TECHNICAL NOTES**

The following definitions, provided by the National Science Foundation (NSF), are most relevant to the tables in this report:

*Federal research expenditures:* when funds for research from the federal government are actually spent they are then considered “expenditures”. For example, if the University received a two-year, two million dollar grant from NASA in FY1993 and spent \$1.5 million the first year and \$0.5 million in the second year, the federal expenditures would be \$1.5 million for FY1993 and \$0.5 million for FY1994. The reporting of expenditures, in contrast to obligations, provides a more accurate picture of an institution’s research performance because it represents funds that have been already spent as compared to funds that have been promised or are expected. Furthermore, expenditure figures are less likely to show major shifts from year to year because funds received for multi-year grants are only reported in the year that they are spent.

*Industry-sponsored research expenditures:* these are funds provided by profit making organizations and expended by the University for research-related purposes. These amounts are reported in the fiscal year that they are expended.

The National Science Foundation has historically reported research obligations and expenditures from a number of different perspectives. In this report, specifically, academic Science & Engineering (S&E) obligations and expenditures for Research & Development (R&D) are examined. Thus, funds received from the federal government for Plant, Facilities & Equipment; Fellowships, Traineeships, and Training Grants; General Support, and for other categories have been excluded. For brevity, "Science and Engineering" and "Research and Development" have not been repeated in the text of this document.

For further clarification, please see “IB99-4: Defining Federal Research Expenditures, Federal Research Obligations, and Federal Research Awards” at the following website:

[http://www.system.missouri.edu/planning/Issue\\_Brief/IB99-4.html](http://www.system.missouri.edu/planning/Issue_Brief/IB99-4.html).

### **Questions or Comments**

Questions or comments should be directed to Dr. Lanette Vaughn, Associate Research Analyst, Institutional Research and Planning, 717 Lewis Hall, University of Missouri System, (573) 884-9201, [vaughnla@umsystem.edu](mailto:vaughnla@umsystem.edu).

## **APPENDIX A AND B: RESEARCH EXPENDITURES AND CAMPUS COMPARATOR GROUPS**

In response to the University-wide Strategic Planning initiative, the following tables were added to the Research Funding Report. Appendix A examines federal research expenditures for science and engineering relative to a different group of comparator institutions for each of the University of Missouri campuses. Specifically, annual growth and market share are reported. Appendix B examines industry-sponsored research expenditures relative to the same group of comparator institutions for each campus. In these tables, annual growth and rank are reported.

## Appendix A

### Federal Research Expenditures for Science and Engineering R&D at the University of Missouri Campuses and Respective Comparison Groups, FY1997 to 2000

	(\$ in thousands)				
<b>UM-Columbia Comparison Group</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>3 Year '% +/-</b>
<b>U of Missouri Columbia</b>	<b>43,335</b>	<b>45,448</b>	<b>53,875</b>	<b>65,420</b>	<b>51.0%</b>
Louisiana St U, All Camp	65,257	67,090	75,831	89,007	36.4%
Colorado State University	79,393	80,451	91,943	101,429	27.8%
University of Kentucky	62,128	60,760	66,184	73,858	18.9%
University of Georgia	54,364	54,712	56,080	62,678	15.3%
U CA Davis	123,673	114,912	124,463	141,740	14.6%
Iowa State University	52,938	51,196	54,179	59,976	13.3%
NC State University	69,473	79,533	66,310	77,328	11.3%
U of Tennessee System	74,049	69,793	70,187	72,059	-2.7%
West Virginia University	29,443	24,985	26,264	28,013	-4.9%
U of Nebraska Lincoln	41,269	41,888	36,977	37,831	-8.3%
VA Polytech Inst & St U	87,657	82,734	75,386	71,127	-18.9%
<b>Total</b>	<b>782,979</b>	<b>773,502</b>	<b>797,679</b>	<b>880,466</b>	
Market Share for UM-Columbia	5.5%	5.9%	6.8%	7.4%	

<b>UM-Kansas City Comparison Group*</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>3 Year '% +/-</b>
Temple U	26,374	28,793	29,734	38,213	44.9%
University of IL Chicago	70,739	73,797	86,406	101,943	44.1%
<b>U of Missouri Kansas City</b>	<b>5,380</b>	<b>6,199</b>	<b>7,206</b>	<b>7,490</b>	<b>39.2%</b>
U of Louisville	13,521	15,067	15,536	17,713	31.0%
Wayne State University	53,707	57,646	57,610	64,320	19.8%
U of Alabama Birmingham	150,501	166,830	165,223	175,309	16.5%
Virginia Commonwealth U	44,982	48,167	48,175	52,137	15.9%
U WI Milwaukee	8,156	8,936	9,409	8,425	3.3%
U of Houston	21,695	22,018	20,443	21,365	-1.5%
<b>Total</b>	<b>395,055</b>	<b>427,453</b>	<b>439,742</b>	<b>486,915</b>	
Market Share for UM-Kansas City	1.4%	1.5%	1.6%	1.5%	

\*Data were unavailable for IUPUI-Indianapolis.

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## Appendix A continued

	(\$ in thousands)				
<b>UM-Rolla Comparison Group*</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>3 Year '% +/-</b>
Michigan Tech University	12,941	13,938	16,107	16,650	28.7%
Colorado School of Mines	9,330	8,694	10,704	11,995	28.6%
SD Sch of Mines & Tech	2,990	3,221	3,300	4,127	38.0%
Clarkson University	3,368	3,010	3,694	3,837	13.9%
<b>U of Missouri Rolla</b>	<b>8,080</b>	<b>7,934</b>	<b>8,731</b>	<b>9,804</b>	<b>21.3%</b>
Rensselaer Polytech Inst	22,785	21,774	22,803	25,555	12.2%
Worcester Polytech Inst	7,315	5,230	4,292	4,219	-42.3%
Kettering University	176	192	89	270	53.4%
Total	66,985	63,993	69,720	76,457	
Market Share for UM-Rolla	12.1%	12.4%	12.5%	12.8%	

\* Data were unavailable for Rose-Hulman Institute of Technology.

<b>UM-St Louis Comparison Group</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>3 Year '% +/-</b>
University of Toledo	2,937	5,366	5,682	6,312	114.9%
The University of Memphis	5,413	5,849	6,364	11,177	106.5%
Wichita State U	2,602	2,646	3,260	5,228	100.9%
Florida International U	13,828	14,243	15,757	20,296	46.8%
U of Akron	5,146	4,042	7,140	7,081	37.6%
Wright State University	10,001	10,832	12,365	12,543	25.4%
<b>U of Missouri St Louis</b>	<b>3,650</b>	<b>3,975</b>	<b>4,841</b>	<b>4,523</b>	<b>23.9%</b>
San Diego State U	20,237	19,721	19,724	22,802	12.7%
U WI Milwaukee	8,156	8,936	9,409	8,425	3.3%
UT-Arlington	26,829	11,294	6,089	5,106	-81.0%
Total	98,799	86,904	90,631	103,493	
Market Share for UM-St Louis	3.7%	4.6%	5.3%	4.4%	

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and Universities, FY 2000, B-33, <http://www.nsf.gov/sbe/srs/srs02402/start.htm>

P&B, January 2002

## Appendix B

### Industry-Sponsored Research Expenditures for Science and Engineering R&D at the University of Missouri Campuses and Respective Comparison Groups FY1997 to FY2000

	(\$ in thousands)					
<b>UM-Columbia Comparison Group</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>3 Year '%+/-</b>	<b>Rank by 2000 \$</b>
West Virginia University	3,719	4,547	5,532	7,185	93.2%	9
U CA Davis	9,362	14,077	16,242	17,891	91.1%	2
Iowa State University	8,499	13,717	14,905	15,075	77.4%	4
VA Polytech Inst & St U	11,385	12,132	13,287	14,869	30.6%	5
U of Nebraska Lincoln	4,651	4,721	5,466	5,991	28.8%	11
NC State University	26,834	31,429	31,478	32,804	22.2%	1
University of Georgia	10,283	10,534	11,034	12,276	19.4%	7
Colorado State U	5,712	6,155	7,213	6,519	14.1%	10
Louisiana St U, All Campus	13,331	12,157	13,187	15,108	13.3%	3
<b>U of Missouri Columbia</b>	<b>3,777</b>	<b>4,348</b>	<b>3,832</b>	<b>4,007</b>	<b>6.1%</b>	<b>12</b>
U of Tennessee System	12,675	12,551	15,903	12,740	0.5%	6
University of Kentucky	11,259	13,668	15,109	11,213	-0.4%	8
Total	121,487	140,036	153,188	155,678		

<b>UM-Kansas City Comparison Group*</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>3 Year '%+/-</b>	<b>Rank by 2000 \$</b>
<b>U of Missouri Kansas City</b>	<b>348</b>	<b>505</b>	<b>427</b>	<b>660</b>	<b>89.7%</b>	<b>7</b>
U of Louisville	3,522	4,800	6,100	6,532	85.5%	5
University of IL Chicago	6,947	9,424	9,683	11,010	58.5%	1
Wayne State University	10,959	11,207	10,660	10,932	-0.2%	2
U of Houston	1,815	1,707	1,762	1,689	-6.9%	6
Virginia Commonwealth U	9,172	8,478	8,062	7,495	-18.3%	4
U of Alabama Birmingham	16,233	16,842	10,181	7,752	-52.2%	3
Temple U	4,690	8,855	1,284	*		
U WI Milwaukee	374	554	*	*		
Total	54,060	62,372	48,159	46,070		

\*Data were not available

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## Appendix B continued

<b>UM-Rolla Comparison Group*</b>	(\$ in thousands)				<b>3 Year '%+/-</b>	<b>Rank by 2000 \$</b>
	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>		
<b>U of Missouri Rolla</b>	<b>1,575</b>	<b>1,361</b>	<b>2,079</b>	<b>2,543</b>	<b>61.5%</b>	<b>4</b>
Worcester Polytech Inst	1,185	1,485	*	1,380	16.5%	6
Colorado School of Mines	8,038	9,877	9,292	7,870	-2.1%	1
Michigan Tech University	3,919	3,747	3,578	3,834	-2.2%	3
Clarkson University	1,512	1,500	1,226	1,447	-4.3%	5
Rensselaer Polytech Inst	9,340	10,974	10,084	6,581	-29.5%	2
<b>Total</b>	<b>25,569</b>	<b>28,944</b>	<b>26,259</b>	<b>23,655</b>		

\* Data were not available

\*\*No data were not available for Kettering University, SD Sch of Mines and Tech, and Rose-Hulman Institute.

<b>UM-St Louis Comparison Group*</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>3 Year '%+/-</b>	<b>Rank by 2000 \$</b>
Wright State University	1,409	1,325	1,717	2,968	110.6%	2
<b>U of Missouri St Louis</b>	<b>274</b>	<b>273</b>	<b>386</b>	<b>461</b>	<b>68.2%</b>	<b>3</b>
U of Akron	3,411	2,767	2,150	3,090	-9.4%	1
UT-Arlington	2,641	2,642	2,220	*		
University of Wisconsin Milwaukee	374	554	*	*		
The University of Memphis	903	784	*	*		
<b>Total</b>	<b>9,012</b>	<b>8,345</b>	<b>6,473</b>	<b>6,519</b>		

\*Data not available

\*Data were not available for the Florida International U, San Diego State U, U of Toledo and Wichita State University.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and University, FY 2000, B-38, <http://www.nsf.gov/sbe/srs/srs02402/start.htm>

P&B, January 2002