**Status on Research Funding**
**At the University of Missouri**
**2000**

Mardy T. Eimers
Senior Analyst
EimersM@umsystem.edu

January 2000

Revisions to Appendix A & B
Were made on February 2, 2000

Office of Planning and Budget
University of Missouri System
P&B 2000-2

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. NSF data have been used because they provide consistent data on research funding for all thirty-two public AAU institutions. Please note that the data used in this study are from fiscal year 1998. 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 1998 and from 1995 to 1998.

The key findings include:

***Federal Research Expenditures***

- On average, federal research expenditures at the University of Missouri have increased 39% over the past three years and 97% over the past eight years. This compares to an increase of 9% and 54%, respectively, at the public AAU institutions (Table 1).

- From 1995 to 1998, the University's market share in federal research expenditures among the public AAU institutions has increased from 1.11% to 1.42%. It is the second consecutive year that the University's market share has improved relative to the public AAU institutions. (Table 2).

- In terms of federal research expenditures, the University of Missouri ranked 28$^{th}$ among the 32 public AAU institutions in 1998. The University held the rank of 29$^{th}$ in 1990 (Table 3).

- Eighteen of the thirty-two public AAU institutions in 1998 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***

- The University of Missouri secured $6.5 million in industry-sponsored research expenditures in 1998. Although this amount is lower than in past years (e.g., $10.1 million in 1995), new accounting methods have been responsible in part for this decline (Table 6).

***Restricted Research Expenditures***

- Fifty-five percent of the total research expenditures at the University of Missouri were restricted in 1998. This would rank the University 30$^{th}$ among the public AAU institutions in terms of the percentage of restricted research expenditures (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: | Restricted and Unrestricted Research Expenditures and Sources of Expenditures (Tables 7-8) |
| 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 1998 and from 1995 to 1998. 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, 1997 and 1998 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***

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 39% over the past three years and 97% over the past eight years. This compares to an increase of 9% and 54%, respectively, at the public AAU institutions.

- Since 1995, the University of Maryland, the University of Colorado, and the University of Florida, in that order, have made the most significant percentage gains among the public AAU institutions. There were nine public AAU institutions that did not show increases in federal research funding from 1995 to 1998.

## Table 1. Trends in Federal Expenditures for Science and Engineering R&D at Public AAU Institutions from 1990 and 1995

($ in thousands)

| Institution | 1990 | 1995 | 1996 | 1997 | 1998 | % increase since 1990 | % increase since 1995 |
|---|---|---|---|---|---|---|---|
| U of Maryland-College Park | 66,410 | 94,071 | 99,688 | 102,928 | 129,198 | 95% | 37% |
| U of Colorado | 116,394 | 169,666 | 177,517 | 192,201 | 228,342 | 96% | 35% |
| U of Florida | 64,614 | 79,361 | 86,973 | 94,231 | 106,510 | 65% | 34% |
| U of Illinois-Urbana | 117,168 | 139,078 | 145,514 | 156,366 | 168,871 | 44% | 21% |
| U of Kansas | 26,786 | 42,209 | 41,858 | 46,733 | 50,567 | 89% | 20% |
| U of Pittsburgh | 90,700 | 144,487 | 149,960 | 160,833 | 168,511 | 86% | 17% |
| U of California-Los Angeles | 164,442 | 201,773 | 236,635 | 238,919 | 233,702 | 42% | 16% |
| U of Washington | 203,353 | 291,284 | 312,695 | 320,784 | 336,748 | 66% | 16% |
| U of Texas-Austin | 109,593 | 143,939 | 147,808 | 151,954 | 165,082 | 51% | 15% |
| U of Oregon | 20,151 | 23,789 | 26,411 | 26,020 | 27,041 | 34% | 14% |
| U of Nebraska-Lincoln | 22,686 | 36,897 | 32,352 | 41,269 | 41,888 | 85% | 14% |
| U of Michigan | 180,456 | 275,956 | 281,062 | 296,028 | 311,450 | 73% | 13% |
| U of Iowa | 79,046 | 103,115 | 105,646 | 108,534 | 115,312 | 46% | 12% |
| Indiana U | 57,155 | 86,041 | 90,881 | 96,087 | 95,840 | 68% | 11% |
| U of N Carolina-Chapel Hill | 92,468 | 156,626 | 157,034 | 153,985 | 171,505 | 85% | 9% |
| U of Virginia | 58,801 | 85,244 | 75,256 | 82,488 | 93,328 | 59% | 9% |
| U of California-Berkeley | 131,717 | 157,826 | 168,171 | 186,349 | 171,135 | 30% | 8% |
| U of California-Santa Barbara | 47,873 | 63,443 | 73,400 | 74,149 | 68,408 | 43% | 8% |
| U of Minnesota | 143,810 | 194,819 | 198,927 | 200,149 | 204,741 | 42% | 5% |
| U of Wisconsin-Madison | 178,862 | 229,381 | 233,174 | 233,760 | 240,513 | 34% | 5% |
| Michigan State U | 58,221 | 77,499 | 77,243 | 82,977 | 81,146 | 39% | 5% |
| Ohio State U | 78,878 | 122,660 | 118,811 | 122,582 | 124,177 | 57% | 1% |
| SUNY-Buffalo | 66,876 | 75,713 | 87,813 | 78,092 | 76,037 | 14% | 0% |
| Purdue U | 64,464 | 93,256 | 91,632 | 91,969 | 92,844 | 44% | 0% |
| Pennsylvania State U | 136,656 | 187,481 | 190,688 | 185,206 | 186,274 | 36% | -1% |
| Rutgers, the State U of NJ | 40,977 | 72,567 | 67,588 | 68,225 | 69,829 | 70% | -4% |
| U of Arizona | 92,920 | 168,791 | 154,004 | 152,221 | 161,999 | 74% | -4% |
| U of California-Irvine | 52,492 | 69,655 | 72,994 | 71,472 | 65,902 | 26% | -5% |
| U of California-Davis | 77,424 | 122,645 | 130,188 | 123,673 | 114,912 | 48% | -6% |
| U of California-San Diego | 182,555 | 284,445 | 291,917 | 274,860 | 262,303 | 44% | -8% |
| Iowa State U | 34,043 | 58,766 | 54,904 | 52,938 | 51,196 | 50% | -13% |
| | | | | | | | |
| Public AAU Institution Average | 92,193 | 130,725 | 134,798 | 137,677 | 142,429 | 54% | 9% |
| | | | | | | | |
| University of Missouri:* | | | | | | | |
| Columbia | 24,422 | 32,420 | 38,938 | 43,335 | 45,448 | 86% | 40% |
| Kansas City | 2,767 | 4,506 | 5,087 | 5,380 | 6,199 | 124% | 38% |
| Rolla | 3,863 | 5,834 | 7,542 | 8,080 | 7,934 | 105% | 36% |
| St Louis | 1,167 | 2,840 | 3,349 | 3,650 | 3,975 | 241% | 40% |
| University Total | 32,219 | 45,600 | 54,916 | 60,445 | 63,556 | 97% | 39% |

Source: National Science Foundation, Survey of Research and Development Expenditures at Colleges and Universities, FY1998

* Federal flow-through funds are included in the University of Missouri figures beginning in FY 1996.
P&B, 1/2000

***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 1998.

- Among the public AAU institutions, the market share for the University of Missouri held steady at 1.11% from 1990 to 1995. During the past three years, however, the University's market share has increased from 1.11% to 1.42%.

## Table 2. Market Share Gain or Loss in Federal Expenditures for Science and Engineering R&D at Public AAU Institutions, 1990 to 1998

**($ in thousands)**

| Institution | 1990 $ | 1990 Market Share | 1995 $ | 1995 Market Share | 1998 $ | 1998 Market Share | MS +/- since 1990 | MS +/- since 1995 |
|---|---|---|---|---|---|---|---|---|
| U of Colorado | 116,394 | 4.03 | 169,666 | 4.14 | 228,342 | 5.10 | 1.07 | 0.96 |
| U of Maryland-College Park | 66,410 | 2.30 | 94,071 | 2.30 | 129,198 | 2.88 | 0.59 | 0.59 |
| U of Florida | 64,614 | 2.24 | 79,361 | 1.94 | 106,510 | 2.38 | 0.14 | 0.44 |
| U of Washington | 203,353 | 7.04 | 291,284 | 7.11 | 336,748 | 7.52 | 0.48 | 0.41 |
| U of Illinois-Urbana | 117,168 | 4.05 | 139,078 | 3.39 | 168,871 | 3.77 | -0.28 | 0.38 |
| University Total | 32,219 | 1.11 | 45,600 | 1.11 | 63,556 | 1.42 | 0.30 | 0.31 |
| U of California-Los Angeles | 164,442 | 5.69 | 201,773 | 4.92 | 233,702 | 5.22 | -0.47 | 0.29 |
| U of Pittsburgh | 90,700 | 3.14 | 144,487 | 3.53 | 168,511 | 3.76 | 0.62 | 0.24 |
| U of Michigan | 180,456 | 6.24 | 275,956 | 6.73 | 311,450 | 6.95 | 0.71 | 0.22 |
| U of Texas-Austin | 109,593 | 3.79 | 143,939 | 3.51 | 165,082 | 3.69 | -0.11 | 0.17 |
| U of Kansas | 26,786 | 0.93 | 42,209 | 1.03 | 50,567 | 1.13 | 0.20 | 0.10 |
| U of Iowa | 79,046 | 2.73 | 103,115 | 2.52 | 115,312 | 2.57 | -0.16 | 0.06 |
| Indiana U | 57,155 | 1.98 | 86,041 | 2.10 | 95,840 | 2.14 | 0.16 | 0.04 |
| U of Nebraska-Lincoln | 22,686 | 0.78 | 36,897 | 0.90 | 41,888 | 0.94 | 0.15 | 0.03 |
| U of Oregon | 20,151 | 0.70 | 23,789 | 0.58 | 27,041 | 0.60 | -0.09 | 0.02 |
| U of N Carolina-Chapel Hill | 92,468 | 3.20 | 156,626 | 3.82 | 171,505 | 3.83 | 0.63 | 0.01 |
| U of Virginia | 58,801 | 2.03 | 85,244 | 2.08 | 93,328 | 2.08 | 0.05 | 0.00 |
| U of California-Santa Barbara | 47,873 | 1.66 | 63,443 | 1.55 | 68,408 | 1.53 | -0.13 | -0.02 |
| U of California-Berkeley | 131,717 | 4.56 | 157,826 | 3.85 | 171,135 | 3.82 | -0.74 | -0.03 |
| Michigan State U | 58,221 | 2.01 | 77,499 | 1.89 | 81,146 | 1.81 | -0.20 | -0.08 |
| SUNY-Buffalo | 66,876 | 2.31 | 75,713 | 1.85 | 76,037 | 1.70 | -0.62 | -0.15 |
| U of Minnesota | 143,810 | 4.98 | 194,819 | 4.75 | 204,741 | 4.57 | -0.40 | -0.18 |
| Purdue U | 64,464 | 2.23 | 93,256 | 2.28 | 92,844 | 2.07 | -0.16 | -0.20 |
| Rutgers, the State U of NJ | 40,977 | 1.42 | 72,567 | 1.77 | 69,829 | 1.56 | 0.14 | -0.21 |
| Ohio State U | 78,878 | 2.73 | 122,660 | 2.99 | 124,177 | 2.77 | 0.04 | -0.22 |
| U of Wisconsin-Madison | 178,862 | 6.19 | 229,381 | 5.60 | 240,513 | 5.37 | -0.82 | -0.23 |
| U of California-Irvine | 52,492 | 1.82 | 69,655 | 1.70 | 65,902 | 1.47 | -0.34 | -0.23 |
| Iowa State U | 34,043 | 1.18 | 58,766 | 1.43 | 51,196 | 1.14 | -0.03 | -0.29 |
| Pennsylvania State U | 136,656 | 4.73 | 187,481 | 4.57 | 186,274 | 4.16 | -0.57 | -0.42 |
| U of California-Davis | 77,424 | 2.68 | 122,645 | 2.99 | 114,912 | 2.57 | -0.11 | -0.43 |
| U of Arizona | 92,920 | 3.21 | 168,791 | 4.12 | 161,999 | 3.62 | 0.40 | -0.50 |
| U of California-San Diego | 182,555 | 6.32 | 284,445 | 6.94 | 262,303 | 5.86 | -0.46 | -1.08 |
| | | 100.00 | | 100.00 | | 100.00 | | |

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, Survey of Research and Development Expenditures at Colleges and Universities, FY 1998

P&B, 1/2000

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

***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 1998.

- The University of Missouri ranked 28$^{th}$ among the 32 public AAU institutions in 1998. This is one position better than its 1990 ranking (29$^{th}$).

## Table 3. Federal Expenditures for Science and Engineering R&D: Changes in Rank Among the Public AAU Institutions between 1990 and 1998

($ in thousands)

| 1990 | | | 1998 | | |
|---|---|---|---|---|---|
| Rank | Institution | $ | Rank | Institution | $ |
| 1 | U of Washington | 203,353 | 1 | U of Washington | 336,748 |
| 2 | U of California-San Diego | 182,555 | 2 | U of Michigan | 311,450 |
| 3 | U of Michigan | 180,456 | 3 | U of California-San Diego | 262,303 |
| 4 | U of Wisconsin-Madison | 178,862 | 4 | U of Wisconsin-Madison | 240,513 |
| 5 | U of California-Los Angeles | 164,442 | 5 | U of California-Los Angeles | 233,702 |
| 6 | U of Minnesota | 143,810 | 6 | U of Colorado | 228,342 |
| 7 | Pennsylvania State U | 136,656 | 7 | U of Minnesota | 204,741 |
| 8 | U of California-Berkeley | 131,717 | 8 | Pennsylvania State U | 186,274 |
| 9 | U of Illinois-Urbana | 117,168 | 9 | U of N Carolina-Chapel Hill | 171,505 |
| 10 | U of Colorado | 116,394 | 10 | U of California-Berkeley | 171,135 |
| 11 | U of Texas-Austin | 109,593 | 11 | U of Illinois-Urbana | 168,871 |
| 12 | U of Arizona | 92,920 | 12 | U of Pittsburgh | 168,511 |
| 13 | U of N Carolina-Chapel Hill | 92,468 | 13 | U of Texas-Austin | 165,082 |
| 14 | U of Pittsburgh | 90,700 | 14 | U of Arizona | 161,999 |
| 15 | U of Iowa | 79,046 | 15 | U of Maryland-College Park | 129,198 |
| 16 | Ohio State U | 78,878 | 16 | Ohio State U | 124,177 |
| 17 | U of California-Davis | 77,424 | 17 | U of Iowa | 115,312 |
| 18 | SUNY-Buffalo | 66,876 | 18 | U of California-Davis | 114,912 |
| 19 | U of Maryland-College Park | 66,410 | 19 | U of Florida | 106,510 |
| 20 | U of Florida | 64,614 | 20 | Indiana U | 95,840 |
| 21 | Purdue U | 64,464 | 21 | U of Virginia | 93,328 |
| 22 | U of Virginia | 58,801 | 22 | Purdue U | 92,844 |
| 23 | Michigan State U | 58,221 | 23 | Michigan State U | 81,146 |
| 24 | Indiana U | 57,155 | 24 | SUNY-Buffalo | 76,037 |
| 25 | U of California-Irvine | 52,492 | 25 | Rutgers, the State U of NJ | 69,829 |
| 26 | U of California-Santa Barbara | 47,873 | 26 | U of California-Santa Barbara | 68,408 |
| 27 | Rutgers, the State U of NJ | 40,977 | 27 | U of California-Irvine | 65,902 |
| 28 | Iowa State U | 34,043 | | University Total | 63,556 |
| | University Total | 32,219 | 28 | Iowa State U | 51,196 |
| 29 | U of Kansas | 26,786 | 29 | U of Kansas | 50,567 |
| 30 | U of Missouri-Columbia | 24,422 | 30 | U of Missouri-Columbia | 45,448 |
| 31 | U of Nebraska-Lincoln | 22,686 | 31 | U of Nebraska-Lincoln | 41,888 |
| 32 | U of Oregon | 20,151 | 32 | U of Oregon | 27,041 |

Source: National Science Foundation, Survey of Research and Development Expenditures at Colleges and Universities, FY 1998

P&B, 1/2000

***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 public AAU institutions.

- In 1998 the majority of federal research funds expended by the public AAU institutions were in the life sciences (52%) followed by engineering (16%), the physical sciences (13%) and environmental sciences (7%). The remaining disciplines accounted for 12% of the expenditures.

- Eighteen of the thirty-one public AAU institutions in 1998 (not including the University of Missouri) 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 80% of their federal expenditures from life sciences, respectively, Rolla garnered 69% of its federal funds in engineering and St Louis received 32% of its federal funds in physical sciences and 32% of its federal funding in life sciences.

## Table 4. Federal R&D Expenditures at the Public AAU Institutions by Science and Engineering Field, FY1998

| Institution | Engi-neering | Physical | Environ-mental | Math & computer | Life sciences | Psy-chology | Social sciences | Other sciences | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Row Percentages | | | | | | | | (in thousands) |
| U of Washington | 7 | 5 | 17 | 2 | 66 | 3 | 0 | 0 | 336,748 |
| University of Michigan | 22 | 6 | 6 | 1 | 55 | 2 | 8 | 0 | 311,450 |
| U CA San Diego | 10 | 11 | 23 | 5 | 48 | 1 | 2 | 0 | 262,303 |
| U WI Madison | 14 | 12 | 7 | 3 | 53 | 6 | 5 | 0 | 240,513 |
| U CA Los Angeles | 12 | 10 | 2 | 4 | 68 | 2 | 1 | 0 | 233,702 |
| University of Colorado | 7 | 13 | 27 | 3 | 46 | 2 | 1 | 0 | 228,342 |
| University of Minnesota | 12 | 7 | 2 | 4 | 71 | 3 | 1 | 0 | 204,741 |
| Pennsylvania State U | 46 | 8 | 7 | 1 | 28 | 3 | 6 | 1 | 186,274 |
| U of NC Chapel Hill | 0 | 5 | 4 | 4 | 76 | 2 | 10 | 0 | 171,505 |
| U CA Berkeley | 28 | 24 | 1 | 2 | 38 | 3 | 2 | 1 | 171,135 |
| U of Illinois Urbana | 32 | 11 | 4 | 25 | 19 | 2 | 2 | 6 | 168,871 |
| University of Pittsburgh | 2 | 5 | 0 | 2 | 86 | 2 | 2 | 1 | 168,511 |
| U TX Austin | 28 | 45 | 4 | 9 | 11 | 2 | 1 | 0 | 165,082 |
| University of Arizona | 15 | 27 | 4 | 4 | 46 | 1 | 3 | 0 | 161,999 |
| U MD College Park | 30 | 25 | 5 | 10 | 9 | 1 | 21 | 0 | 129,198 |
| Ohio State University | 15 | 9 | 5 | 3 | 58 | 2 | 7 | 0 | 124,177 |
| U of Iowa | 7 | 10 | 0 | 1 | 77 | 2 | 2 | 0 | 115,312 |
| U CA Davis | 9 | 8 | 2 | 2 | 77 | 1 | 1 | 0 | 114,912 |
| University of Florida | 20 | 9 | 2 | 5 | 60 | 2 | 2 | 0 | 106,510 |
| Indiana University | 0 | 18 | 1 | 2 | 68 | 6 | 5 | 0 | 95,840 |
| University of Virginia | 16 | 11 | 4 | 6 | 60 | 3 | 1 | 0 | 93,328 |
| Purdue University | 38 | 15 | 3 | 5 | 35 | 2 | 3 | 0 | 92,844 |
| Michigan State University | 6 | 24 | 0 | 2 | 56 | 2 | 9 | 0 | 81,146 |
| SUNY Buffalo | 19 | 7 | 0 | 3 | 64 | 6 | 1 | 0 | 76,037 |
| Rutgers the State U NJ | 16 | 15 | 9 | 12 | 36 | 4 | 7 | 0 | 69,829 |
| U CA Santa Barbara | 39 | 20 | 17 | 10 | 8 | 2 | 5 | 0 | 68,408 |
| U CA Irvine | 6 | 19 | 2 | 4 | 63 | 3 | 2 | 0 | 65,902 |
| Iowa State University | 28 | 10 | 2 | 6 | 40 | 0 | 14 | 0 | 51,196 |
| University of Kansas | 15 | 11 | 4 | 1 | 56 | 1 | 1 | 10 | 50,567 |
| U of Nebraska Lincoln | 9 | 10 | 21 | 2 | 53 | 1 | 4 | 0 | 41,888 |
| University of Oregon | 6 | 22 | 9 | 10 | 44 | 6 | 3 | 0 | 27,041 |
| | | | | | | | | | |
| Public AAU Distribution | 16 | 13 | 7 | 5 | 52 | 2 | 4 | 0 | |
| | | | | | | | | | |
| University of Missouri: | | | | | | | | | |
| Columbia | 9 | 5 | 1 | 1 | 70 | 5 | 8 | 0 | 45,448 |
| Kansas City | 0 | 6 | 0 | 12 | 80 | 0 | 1 | 0 | 6,199 |
| Rolla | 69 | 20 | 7 | 3 | 2 | 0 | 0 | 0 | 7,934 |
| St Louis | 0 | 32 | 0 | 2 | 32 | 21 | 14 | 0 | 3,975 |
| University Total | 15 | 8 | 2 | 3 | 60 | 5 | 7 | 0 | 63,556 |

Source: National Science Foundation/SRS, Survey of Research and Development Expenditures at Universities and Colleges, FY1998

P&B, 1/2000

***Table 5:***
***Market Share of Federal Research Expenditures within Each Discipline Area among the Public AAU Institutions***

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 has been pooled.

- The discipline areas where the University of Missouri had secured the most significant market share were in psychology (3.0%), social sciences (2.4%), life sciences (1.6%), and engineering (1.3%).

- Market share leaders in each discipline area were: Pennsylvania State in engineering (11.7%), the University of Texas in the physical sciences (12.9%), the University of Colorado in environmental sciences (19.1%), and the University of Illinois in math and computer science (20.6%). In addition, the leaders by discipline area included the University of Washington in life sciences (9.5%), UW Madison in psychology (13.1%), and the University of Maryland in the social sciences (15.0%).

## Table 5. Market Share in Federal R&D Expenditures by Discipline Area Among the Public AAU Institutions, FY1998

| Institution | Engi-neering | Physical | Environ-mental | Math & computer | Life sciences | Psy-chology | Social sciences | Other sciences | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Row Percentages | | | | | | | | (in thousands) |
| U of Washington | 3.0 | 2.9 | 17.8 | 3.9 | $\boxed{9.5}$ | 8.3 | 0.4 | 0.0 | 336,748 |
| University of Michigan | 9.4 | 3.0 | 5.7 | 1.8 | 7.3 | 5.0 | 14.7 | 1.7 | 311,450 |
| U CA San Diego | 3.7 | 4.9 | 18.4 | 6.0 | 5.4 | 2.3 | 2.6 | 0.2 | 262,303 |
| U WI Madison | 4.7 | 4.9 | 5.3 | 3.8 | 5.4 | $\boxed{13.1}$ | 6.9 | 0.1 | 240,513 |
| U CA Los Angeles | 3.8 | 4.2 | 1.7 | 4.3 | 6.8 | 4.8 | 1.6 | 0.0 | 233,702 |
| University of Colorado | 2.3 | 5.4 | $\boxed{19.1}$ | 3.1 | 4.5 | 3.8 | 1.3 | 4.7 | 228,342 |
| University of Minnesota | 3.3 | 2.6 | 1.4 | 4.3 | 6.2 | 5.1 | 1.2 | 0.0 | 204,741 |
| Pennsylvania State U | $\boxed{11.7}$ | 2.5 | 3.8 | 1.1 | 2.2 | 5.3 | 6.6 | 11.0 | 186,274 |
| U of NC Chapel Hill | 0.0 | 1.4 | 1.9 | 3.0 | 5.6 | 2.8 | 9.5 | 0.0 | 171,505 |
| U CA Berkeley | 6.6 | 7.3 | 0.8 | 1.9 | 2.8 | 4.1 | 2.3 | 5.4 | 171,135 |
| U of Illinois Urbana | 7.4 | 3.3 | 2.0 | $\boxed{20.6}$ | 1.3 | 3.5 | 1.8 | $\boxed{42.4}$ | 168,871 |
| University of Pittsburgh | 0.5 | 1.5 | 0.2 | 1.3 | 6.2 | 3.8 | 1.5 | 5.4 | 168,511 |
| U TX Austin | 6.4 | $\boxed{12.9}$ | 2.0 | 7.6 | 0.8 | 2.4 | 1.2 | 0.2 | 165,082 |
| University of Arizona | 3.3 | 7.7 | 1.8 | 3.3 | 3.2 | 0.8 | 2.8 | 0.6 | 161,999 |
| U MD College Park | 5.3 | 5.6 | 2.1 | 6.3 | 0.5 | 1.1 | $\boxed{15.0}$ | 0.0 | 129,198 |
| Ohio State University | 2.6 | 2.0 | 1.9 | 1.7 | 3.1 | 2.5 | 5.2 | 1.7 | 124,177 |
| U of Iowa | 1.2 | 2.1 | 0.1 | 0.4 | 3.8 | 2.1 | 1.3 | 0.0 | 115,312 |
| U CA Davis | 1.4 | 1.6 | 0.6 | 1.3 | 3.8 | 1.3 | 0.4 | 0.0 | 114,912 |
| University of Florida | 3.0 | 1.8 | 0.6 | 2.5 | 2.7 | 2.1 | 0.9 | 0.1 | 106,510 |
| Indiana University | 0.0 | 3.0 | 0.2 | 1.1 | 2.8 | 5.1 | 2.6 | 0.5 | 95,840 |
| University of Virginia | 2.0 | 1.8 | 1.2 | 2.7 | 2.4 | 2.5 | 0.3 | 0.0 | 93,328 |
| Purdue University | 4.8 | 2.5 | 0.7 | 2.1 | 1.4 | 1.6 | 1.5 | 0.7 | 92,844 |
| Michigan State University | 0.7 | 3.4 | 0.1 | 1.0 | 1.9 | 1.2 | 4.2 | 0.2 | 81,146 |
| SUNY Buffalo | 1.9 | 0.9 | 0.1 | 1.1 | 2.1 | 3.9 | 0.5 | 0.0 | 76,037 |
| Rutgers the State U NJ | 1.6 | 1.8 | 1.9 | 4.3 | 1.1 | 2.9 | 2.8 | 0.2 | 69,829 |
| U CA Santa Barbara | 3.6 | 2.4 | 3.5 | 3.3 | 0.2 | 1.1 | 2.0 | 0.2 | 68,408 |
| U CA Irvine | 0.6 | 2.2 | 0.5 | 1.3 | 1.8 | 2.1 | 0.9 | 0.0 | 65,902 |
| University Total | 1.3 | 0.9 | 0.3 | 0.8 | 1.6 | 3.0 | 2.4 | 0.1 | 63,556 |
| Iowa State University | 2.0 | 0.9 | 0.3 | 1.6 | 0.9 | 0.0 | 3.9 | 0.9 | 51,196 |
| University of Kansas | 1.1 | 1.0 | 0.7 | 0.3 | 1.2 | 0.7 | 0.2 | 23.6 | 50,567 |
| U of Nebraska Lincoln | 0.5 | 0.7 | 2.7 | 0.5 | 1.0 | 0.3 | 0.8 | 0.0 | 41,888 |
| University of Oregon | 0.2 | 1.1 | 0.7 | 1.4 | 0.5 | 1.4 | 0.5 | 0.0 | 27,041 |
| Public AAU Distribution | 727,840 | 572,916 | 326,581 | 201,840 | 2,341,970 | 107,415 | 178,311 | 21,994 | 4,478,867 |

Note: Boxed figures in each column identify the market share leader among the public AAU institutions in each discipline area.
Source: National Science Foundation/SRS, Survey of Research and Development Expenditures at Universities and Colleges, FY1998
P&B, 1/2000

# SECTION II:
# RESEARCH EXPENDITURES FROM INDUSTRY

***Table 6:***
***Industry-Sponsored Research Expenditures***

Table 6 shows the growth in industry-sponsored research expenditures for the public AAU institutions from 1990 to 1998 and from 1995 to 1998. The institutions are arranged in descending order based on their level of growth in dollars since 1995. Please note that a definition of *industry-sponsored research expenditures* is provided in Section III: Definitions and Technical Notes.

- Over the past three years, the University of Texas, Ohio State University, and UC San Diego have shown 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 ($63.3 million), Ohio State University ($40.4 million), and the University of Washington ($38.4 million).

- The University of Missouri secured $6.5 million in industry-sponsored research expenditures in 1998.

## Table 6. Industry-Sponsored R&D Expenditures at Public AAU Institutions Since 1990 and 1995

($ in thousands)

| Institution | 1990 | 1995 | 1996 | 1997 | 1998 | $ Gain/Loss since 1995 |
|---|---|---|---|---|---|---|
| U TX Austin | 3,507 | 3,257 | 15,029 | 29,887 | 31,326 | 28,069 |
| Ohio State University | 14,744 | 21,827 | 30,870 | 36,685 | 40,401 | 18,574 |
| U CA San Diego | 9,135 | 11,363 | 15,130 | 19,266 | 26,814 | 15,451 |
| Pennsylvania State U | 34,806 | 50,225 | 52,771 | 56,666 | 63,319 | 13,094 |
| U CA Los Angeles | 8,310 | 14,892 | 15,788 | 19,586 | 27,817 | 12,925 |
| University of Florida | 12,237 | 10,611 | 23,532 | 25,217 | 21,393 | 10,782 |
| U CA Berkeley | 10,892 | 13,842 | 15,128 | 17,125 | 20,483 | 6,641 |
| U CA Irvine | 3,115 | 9,139 | 10,391 | 10,445 | 15,712 | 6,573 |
| U CA Davis | 7,461 | 8,053 | 9,387 | 9,362 | 14,077 | 6,024 |
| U of Iowa | 6,827 | 11,359 | 14,862 | 15,712 | 17,262 | 5,903 |
| Iowa State University | 5,525 | 8,017 | 7,407 | 8,499 | 13,717 | 5,700 |
| University of Michigan | 27,128 | 28,987 | 34,975 | 31,411 | 33,029 | 4,042 |
| U of NC Chapel Hill | 2,179 | 2,403 | 2,592 | 3,311 | 4,860 | 2,457 |
| University of Colorado | 7,426 | 7,607 | 8,902 | 9,403 | 9,963 | 2,356 |
| University of Pittsburgh | 6,481 | 8,208 | 7,880 | 9,753 | 10,436 | 2,228 |
| U of Illinois Urbana | 20,762 | 11,832 | 12,365 | 11,761 | 13,917 | 2,085 |
| Purdue University | 11,632 | 25,147 | 25,720 | 26,090 | 26,988 | 1,841 |
| U of Nebraska Lincoln | 3,394 | 3,145 | 3,465 | 4,651 | 4,721 | 1,576 |
| U of Washington | 22,215 | 36,892 | 36,180 | 37,744 | 38,370 | 1,478 |
| U WI Madison | 12,123 | 12,948 | 13,871 | 14,832 | 14,371 | 1,423 |
| Rutgers the State U NJ | 6,754 | 7,797 | 7,079 | 8,848 | 9,038 | 1,241 |
| University of Arizona | 10,246 | 15,300 | 13,106 | 14,964 | 16,392 | 1,092 |
| U CA Santa Barbara | 2,655 | 2,576 | 2,988 | 2,876 | 3,666 | 1,090 |
| University of Minnesota | 18,086 | 23,427 | 23,726 | 24,196 | 24,094 | 667 |
| Indiana University | 2,316 | 5,815 | 5,357 | 4,242 | 6,333 | 518 |
| University of Kansas | 4,473 | 8,149 | 9,356 | 8,201 | 8,281 | 132 |
| Michigan State University | 4,557 | 7,853 | 6,818 | 6,973 | 7,250 | -603 |
| University of Virginia | 6,406 | 15,442 | 4,552 | 7,627 | 12,400 | -3,042 |
| SUNY Buffalo | 2,118 | 13,390 | 13,186 | 14,480 | 3,021 | -10,369 |
| U MD College Park | 14,229 | 25,431 | 24,044 | 5,009 | 2,127 | -23,304 |
| Public AAU Average | 10,058 | 14,164 | 15,549 | 16,494 | 18,053 | |
| University of Missouri: | | | | | | |
| Columbia | 9,130 | 10,114 | 3,158 | 3,777 | 4,348 | -5,766 |
| Kansas City | 1,383 | 636 | 154 | 348 | 505 | -131 |
| Rolla | 2,186 | 1,316 | 2,364 | 1,575 | 1,361 | 45 |
| St Louis | 69 | 409 | 191 | 274 | 273 | -136 |
| University Total | 12,768 | 12,475 | 5,867 | 5,974 | 6,487 | -5,988 |

Source: National Science Foundation, Survey of Research and Development Expenditures at Colleges and Universities, FY 1998
P&B, 1/2000

## SECTION III:
## RESTRICTED AND UNRESTRICTED RESEARCH EXPENDITURES

Universities have sources other than federal agencies for funding research operations on their campus. These sources include funds from state & local agencies, business & industry, and funds that are provided by the institution itself. Typically, funds that are provided by a source external to the institution (e.g., federal agency, state agency, industry, etc.) for a specific research purpose are labeled "restricted expenditures." That is, they are "restricted" because the external agency has provided the funds for a specific research project and these funds must be spent on this project. On the other hand, unrestricted research expenditures are generally provided by internal sources (e.g., governing board, the institution, etc.) and can be used for a research purpose determined by the institution.

Generally speaking, the higher the percentage of restricted research expenditures the better because the institution is using external sources to fuel its research endeavors. In addition, it is probably even more favorable if these restricted research expenditures originate from federal or industry sources in contrast to state & local sources. That is, state funds that are used to fuel research at public universities are still commitments of the state's resources. Further, research funds provided by federal agencie--in contrast to state agencies--typically provide a higher percentage of the indirect costs affiliated with the research project.

***Table 7:***
***Restricted and Unrestricted Research Expenditures***

Table 7 shows the restricted and unrestricted research expenditures for the public AAU institutions. These data originate from the IPEDS-F (Finance) annual survey and not from the NSF survey.

- The University of Washington (95%), UC San Diego (91%), and the University of Colorado (91%) received the highest percentage of restricted research funds among the public AAU institutions. The public AAU institutions average 80% in restricted research expenditures.

- Fifty-five percent of the total research expenditures at the University of Missouri were restricted in 1998. This would rank the University $30^{th}$ among the public AAU institutions in terms of the percentage of restricted research expenditures.

## Table 7. Restricted and Unrestricted Research Expenditures at Public AAU Institutions, FY1998

($ in thousands)

| Institutions | Unrestricted | Restricted | Total | Percentage Restricted |
|---|---|---|---|---|
| U of Washington | 16,766 | 341,002 | 357,768 | 95% |
| University of Colorado | 12,903 | 138,603 | 151,506 | 91% |
| U CA San Diego | 27,359 | 284,522 | 311,881 | 91% |
| U of Iowa | 15,911 | 121,984 | 137,895 | 88% |
| U CA Los Angeles | 37,386 | 282,659 | 320,045 | 88% |
| U CA Santa Barbara | 9,829 | 67,120 | 76,949 | 87% |
| Iowa State University | 17,411 | 109,118 | 126,529 | 86% |
| Ohio State University | 27,329 | 171,075 | 198,404 | 86% |
| University of Michigan | 55,014 | 330,336 | 385,350 | 86% |
| U CA Irvine | 14,131 | 82,663 | 96,794 | 85% |
| Purdue University | 16,754 | 96,351 | 113,105 | 85% |
| University of Virginia | 19,187 | 110,162 | 129,349 | 85% |
| U of NC Chapel Hill | 25,411 | 135,717 | 161,128 | 84% |
| U CA Berkeley | 46,362 | 220,183 | 266,545 | 83% |
| Michigan State University | 26,167 | 124,271 | 150,438 | 83% |
| University of Minnesota | 57,879 | 271,820 | 329,699 | 82% |
| University of Pittsburgh | 34,293 | 159,582 | 193,875 | 82% |
| U TX Austin | 41,125 | 173,565 | 214,690 | 81% |
| University of Oregon | 6,779 | 27,468 | 34,247 | 80% |
| Indiana University | 12,635 | 42,697 | 55,332 | 77% |
| Pennsylvania State U | 54,401 | 181,032 | 235,433 | 77% |
| U of Illinois Urbana | 58,829 | 178,537 | 237,366 | 75% |
| University of Arizona | 53,709 | 153,504 | 207,213 | 74% |
| SUNY Buffalo | 15,261 | 42,928 | 58,189 | 74% |
| U MD College Park | 47,813 | 127,729 | 175,542 | 73% |
| U WI Madison | 114,158 | 299,443 | 413,601 | 72% |
| U CA Davis | 57,202 | 143,415 | 200,617 | 71% |
| University of Kansas | 24,985 | 38,083 | 63,068 | 60% |
| Rutgers the State U NJ | 57,910 | 79,974 | 137,884 | 58% |
| University of Florida | 117,625 | 134,555 | 252,180 | 53% |
| U of Nebraska Lincoln | 48,505 | 32,165 | 80,670 | 40% |
| Public AAU Average | 37,775 | 151,686 | 189,461 | 80% |
| University of Missouri: | | | | |
| Columbia | 46,635 | 52,466 | 99,101 | 53% |
| Kansas City | 3,457 | 6,966 | 10,423 | 67% |
| Rolla | 6,245 | 9,329 | 15,574 | 60% |
| St Louis | 2,860 | 4,280 | 7,140 | 60% |
| University Total | 59,197 | 73,041 | 132,238 | 55% |

Notes: 1) The figures reported in this table are from the IPEDS Finance (F-1) report and not from NSF, the source used for all previous tables. 2) Please note that this table does not include indirect costs.
Source: IPEDS F-1
P&B, 1/2000

***Table 8:***
***Sources of Research Expenditures***

Table 8 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 Oregon, University of Pittsburgh, and University of Washington received over 75% of their research expenditures from the federal government, ranking them at the top among the public AAU institutions.

- Among the thirty-two public AAU institutions, the University of Missouri would rank near the bottom in terms of the percentage of research funds it receives from the federal government.

- The University of Missouri funds a higher percentage of its research program (42% to 50%, depending on which campus) with institutional funds than the other public AAU institutions.

## Table 8. Total R&D Expenditures at the Public AAU Institutions by Source of Funds, FY1998

| Institution | Federal Gov't | State & Local | Industry | Institu-tional* | Other | Total (in thousands) |
|---|---|---|---|---|---|---|
| University of Oregon | 81% | 1% | 0% | 11% | 7% | 33,315 |
| University of Pittsburgh | 79% | 0% | 5% | 9% | 7% | 213,842 |
| U of Washington | 78% | 2% | 9% | 9% | 2% | 432,383 |
| University of Colorado | 73% | 2% | 3% | 11% | 11% | 311,203 |
| U of NC Chapel Hill | 73% | 13% | 2% | 12% | 0% | 235,296 |
| U CA Santa Barbara | 71% | 2% | 4% | 16% | 7% | 96,034 |
| University of Virginia | 70% | 3% | 9% | 9% | 9% | 133,049 |
| U TX Austin | 67% | 6% | 13% | 12% | 2% | 244,843 |
| University of Michigan | 63% | 1% | 7% | 22% | 8% | 496,761 |
| U CA San Diego | 63% | 5% | 6% | 17% | 9% | 418,790 |
| U of Iowa | 58% | 3% | 9% | 23% | 7% | 199,063 |
| U MD College Park | 58% | 17% | 1% | 22% | 3% | 223,190 |
| University of Minnesota | 57% | 13% | 7% | 15% | 8% | 360,323 |
| Indiana University | 56% | 1% | 4% | 28% | 11% | 171,754 |
| U WI Madison | 54% | 9% | 3% | 22% | 12% | 443,695 |
| University of Arizona | 54% | 3% | 5% | 34% | 4% | 302,328 |
| U CA Los Angeles | 52% | 2% | 6% | 26% | 14% | 447,367 |
| Pennsylvania State U | 51% | 4% | 17% | 28% | 0% | 362,643 |
| U CA Irvine | 51% | 4% | 12% | 21% | 12% | 130,415 |
| SUNY Buffalo | 50% | 3% | 2% | 26% | 19% | 151,650 |
| U of Illinois Urbana | 50% | 10% | 4% | 32% | 4% | 338,841 |
| University of Kansas | 43% | 8% | 7% | 30% | 11% | 117,115 |
| Purdue University | 43% | 11% | 12% | 34% | 0% | 216,479 |
| Michigan State University | 42% | 18% | 4% | 32% | 4% | 193,611 |
| Ohio State University | 41% | 18% | 13% | 20% | 8% | 301,518 |
| U CA Berkeley | 41% | 11% | 5% | 34% | 9% | 420,435 |
| U CA Davis | 40% | 7% | 5% | 41% | 8% | 288,796 |
| University of Florida | 39% | 21% | 8% | 29% | 4% | 274,862 |
| Rutgers the State U NJ | 35% | 12% | 5% | 40% | 8% | 197,053 |
| U of Nebraska Lincoln | 35% | 33% | 4% | 26% | 2% | 118,857 |
| Iowa State University | 33% | 30% | 9% | 27% | 2% | 156,766 |
| Public AAU Average | 55% | 9% | 6% | 23% | 7% | |
| University of Missouri: | | | | | | |
| Columbia | 33% | 12% | 3% | 46% | 4% | 136,061 |
| Kansas City | 48% | 1% | 4% | 42% | 5% | 12,875 |
| Rolla | 36% | 1% | 6% | 50% | 7% | 21,740 |
| St Louis | 42% | 3% | 3% | 49% | 3% | 9,462 |

* Institutional funds include: 1) institutionally financed funds and 2) unreimbursed costs.
Source: NSF, Survey of R&D Expenditures at Colleges and Universities, FY1998.
P&B, 1/2000

# 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.

**Questions or Comments**

Questions or comments should be directed to Mardy T. Eimers, Senior Analyst, 104 University Hall, Office of Planning and Budget, University of Missouri System, (573) 882-3412, eimersm@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 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.

For more information on how the comparator institutions for each campus were determined, see http://www.system.missouri.edu/planning/reports/comparator.pdf.

Note: Revisions to Appendix A were made on February 2, 2000.

# Appendix A

## Federal Research Expenditures for Science and Engineering R&D at the University of Missouri Campuses and Respective Comparison Groups, FY1997 and FY1998

| | ($ in thousands) | | |
|---|---|---|---|
| **UM-Columbia Comparison Group** | **1997** | **1998** | **% +/-** |
| NC State University | 69,473 | 79,533 | 14.5% |
| **U of Missouri Columbia** | **43,335** | **45,448** | **4.9%** |
| Louisiana St U, All Camp | 65,257 | 67,090 | 2.8% |
| U of Nebraska Lincoln | 41,269 | 41,888 | 1.5% |
| Colorado State University | 79,393 | 80,451 | 1.3% |
| University of Georgia | 54,364 | 54,712 | 0.6% |
| University of Kentucky | 62,128 | 60,760 | -2.2% |
| Iowa State University | 52,938 | 51,196 | -3.3% |
| VA Polytech Inst & St U | 87,657 | 82,734 | -5.6% |
| U of Tennessee System | 74,049 | 69,793 | -5.7% |
| U CA Davis | 123,673 | 114,912 | -7.1% |
| West Virginia University | 29,443 | 24,985 | -15.1% |
| Total | 782,979 | 773,502 | -1.2% |
| Market Share for UM-Columbia | 5.5% | 5.9% | |

| **UM-Kansas City Comparison Group*** | **1997** | **1998** | **% +/-** |
|---|---|---|---|
| **U of Missouri Kansas City** | **5,380** | **6,199** | **15.2%** |
| U of Louisville | 13,521 | 15,067 | 11.4% |
| U of Alabama Birmingham | 150,501 | 166,830 | 10.8% |
| U WI Milwaukee | 8,156 | 8,936 | 9.6% |
| Temple U | 26,374 | 28,793 | 9.2% |
| Wayne State University | 53,707 | 57,646 | 7.3% |
| Virginia Commonwealth U | 44,982 | 48,167 | 7.1% |
| University of IL Chicago | 70,739 | 73,797 | 4.3% |
| U of Houston | 21,695 | 22,018 | 1.5% |
| Total | 395,055 | 427,453 | 8.2% |
| Market Share for UM-Kansas City | 1.4% | 1.5% | |

*Data were unavailable for IUPU-Indianapolis.

**Continued on next page**

Note: Revisions to Appendix A were made on February 2, 2000.

## Appendix A continued

($ in thousands)

| **UM-Rolla Comparison Group**** | **1997** | **1998** | **% +/-** |
|---|---|---|---|
| Kettering University | 176 | 192 | 9.1% |
| SD Sch of Mines & Tech | 2,990 | 3,221 | 7.7% |
| Michigan Tech University | 12,941 | 13,938 | 7.7% |
| **U of Missouri Rolla** | **8,080** | **7,934** | **-1.8%** |
| Rensselaer Polytech Inst | 22,785 | 21,774 | -4.4% |
| Colorado School of Mines | 9,330 | 8,694 | -6.8% |
| Clarkson University | 3,368 | 3,010 | -10.6% |
| Worcester Polytech Inst | 7,315 | 5,230 | -28.5% |
| Total | 66,985 | 63,993 | -4.5% |
| Market Share for UM-Rolla | 12.1% | 12.4% | |

** Data were unavailable for Rose-Hulman Institution of Technology.

| UM-St Louis Comparison Group | 1997 | 1998 | % +/- |
|---|---|---|---|
| University of Toledo | 2,937 | 5,366 | 82.7% |
| U WI Milwaukee | 8,156 | 8,936 | 9.6% |
| **U of Missouri St Louis** | **3,650** | **3,975** | **8.9%** |
| Wright State University | 10,001 | 10,832 | 8.3% |
| The University of Memphis | 5,413 | 5,849 | 8.1% |
| Florida International U | 13,828 | 14,243 | 3.0% |
| Witchita State U | 2,602 | 2,646 | 1.7% |
| San Diego State U | 20,237 | 19,721 | -2.5% |
| U of Akron | 5,146 | 4,042 | -21.5% |
| UT-Arlington | 26,829 | 11,294 | -57.9% |
| Total | 98,799 | 86,904 | -12.0% |
| Market Share for UM-St Louis | 3.7% | 4.6% | |

Source: NSF Survey of R&D Expenditures at Colleges and Universities, FY1998.
P&B, 1/2000

Note: Revisions to Appendix B were made on February 2, 2000.

# Appendix B

## Industry-Sponsored Research Expenditures for Science and Engineering R&D at the University of Missouri Campuses and Respective Comparison Groups, FY1997 and FY1998

($ in thousands)

| UM-Columbia Comparison Group | 1997 | 1998 | %+/- | Rank by $ |
|---|---|---|---|---|
| Iowa State University | 8,499 | 13,717 | 61.4% | 3 |
| U CA Davis | 9,362 | 14,077 | 50.4% | 2 |
| West Virginia University | 3,719 | 4,547 | 22.3% | 11 |
| University of Kentucky | 11,259 | 13,668 | 21.4% | 4 |
| NC State University | 26,834 | 31,429 | 17.1% | 1 |
| **U of Missouri Columbia** | **3,777** | **4,348** | **15.1%** | **12** |
| Colorado State U | 5,712 | 6,155 | 7.8% | 9 |
| VA Polytech Inst & St U | 11,385 | 12,132 | 6.6% | 7 |
| University of Georgia | 10,283 | 10,534 | 2.4% | 8 |
| U of Nebraska Lincoln | 4,651 | 4,721 | 1.5% | 10 |
| U of Tennessee System | 12,675 | 12,551 | -1.0% | 5 |
| Louisiana St U, All Campus | 13,331 | 12,157 | -8.8% | 6 |
| Total | 121,487 | 140,036 | 15.3% | |

| UM-Kansas City Comparison Group* | 1997 | 1998 | %+/- | Rank by $ |
|---|---|---|---|---|
| Temple U | 4,690 | 8,855 | 88.8% | 4 |
| U WI Milwaukee | 374 | 554 | 48.1% | 8 |
| **U of Missouri Kansas City** | **348** | **505** | **45.1%** | **9** |
| U of Louisville | 3,522 | 4,800 | 36.3% | 6 |
| University of IL Chicago | 6,947 | 9,424 | 35.7% | 3 |
| U of Alabama Birmingham | 16,233 | 16,842 | 3.8% | 1 |
| Wayne State University | 10,959 | 11,207 | 2.3% | 2 |
| U of Houston | 1,815 | 1,707 | -6.0% | 7 |
| Virginia Commonwealth U | 9,172 | 8,478 | -7.6% | 5 |
| Total | 54,060 | 62,372 | 15.4% | |

*Data were not available for UIPU-Indianapolis.

**Continued on next page**

Note: Revisions to Appendix B were made on February 2, 2000.

## Appendix B continued

($ in thousands)

| UM-Rolla Comparison Group** | 1997 | 1998 | %+/- | Rank by $ |
|---|---|---|---|---|
| Worcester Polytech Inst | 1,185 | 1,485 | 25.3% | 5 |
| Colorado School of Mines | 8,038 | 9,877 | 22.9% | 2 |
| Rensselaer Polytech Inst | 9,340 | 10,974 | 17.5% | 1 |
| Clarkson University | 1,512 | 1,500 | -0.8% | 4 |
| Michigan Tech University | 3,819 | 3,747 | -1.9% | 3 |
| **U of Missouri Rolla** | **1,575** | **1,361** | **-13.6%** | **6** |
| Total | 25,469 | 28,944 | 13.6% | |

** Data were not available for Kettering University, SD Sch of Mines and Tech, and Rose-Hulman Institute of Technology.

| UM-St Louis Comparison Group*** | 1997 | 1998 | %+/- | Rank by $ |
|---|---|---|---|---|
| U WI Milwaukee | 374 | 554 | 48.1% | 5 |
| UT-Arlington | 2,641 | 2,642 | 0.0% | 2 |
| **U of Missouri St Louis** | **274** | **273** | **-0.4%** | **6** |
| Wright State University | 1,409 | 1,325 | -6.0% | 3 |
| The University of Memphis | 903 | 784 | -13.2% | 4 |
| U of Akron | 3,411 | 2,767 | -18.9% | 1 |
| Total | 9,012 | 8,345 | -7.4% | |

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

Source: NSF Survey of R&D Expenditures at Colleges and Universities, FY1998.
P&B, 1/2000