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# U.S. University "Top Tens": Harvard, Stanford Still Tops

This marks the fourth installment in a series, now having appeared every four years since 1994, in which *Science Watch* presents "Top Ten" rankings of the top 100 federally funded U.S. universities, based on the citation impact of their published research in major fields of science and the social sciences. The latest two-part collection of listings shows the universities whose research papers attracted citations at a rate notably above the world average in each of 21 fields over the last five years. Nine rankings in the biological sciences appear on page 2. Additional rankings covering the physical and social sciences will appear in the next issue.

As the table at right shows, Harvard University makes the highest number of Top Ten placements, appearing in 15 of the 21 rankings, matching its performance in the 2002 installment. And as was the case four years ago, Stanford University is second, finishing here with 13 Top Ten appearances. Those two schools have vied for top honors throughout this series, with Stanford grabbing the lead spot in 1994 but Harvard taking it over ever since. Among the universities listed here, four others also deserve special mention: MIT, Yale, Caltech, and the University of California (UC), Berkeley. All have now appeared among the page-one honorees in all four of these Top Ten roundups since 1994. Nearly as impressively, the University of Washington and UC San Diego have each appeared among the top finishers in three of the four surveys. (The previous two surveys, incidentally, can be viewed at [www.sciencewatch.com](http://www.sciencewatch.com), in the September/October and November/December issues for 1998 and 2002.) Also noteworthy in the table are the University of Pennsylvania and UC San Francisco, both making their first appearances—even if their tallies of five placements are below the threshold of six or more employed in the previous roundups.

This survey, like its predecessors, derives from the exclusive publication and citation data in Thomson Scientific's *University Science Indicators* database. In 21 fields, each defined by a discrete set of Thomson-indexed journals, *Science Watch* calculated the citations-per-paper (impact) score for each university, based on papers published and cited between 2001 and 2005. The resulting figure was compared to a world baseline figure representing the impact for the field during the same period. This produced a "relative impact" score, expressed as a percentage. In the field of neurosciences & behavior, for example, papers from MIT were

## Highest Impact U.S. Universities, 2001-2005

(Ranked by frequency of Top Ten appearances in 21 fields)

Rank	University	Top Ten Appearances
1	Harvard University	15
2	Stanford University	13
3	Univ. Calif., Berkeley	10
4	University of Washington	8
5	MIT	7
6	Yale University	6
7	Univ. Calif., San Diego	6
8	Princeton University	5
9	University of Pennsylvania	5
10	Caltech	5
11	Univ. Calif., San Francisco	5
12	Columbia University	5

SOURCE: Thomson Scientific University Science Indicators

cited, on average, 16.31 times during 2001-05. The world average for the field was 7.88. MIT, therefore, scored 107% above the world average in its first-place ranking in the field, followed by Rockefeller University, which scored 105% above the world mark. (Tie scores in relative impact were handled in two ways: preference was given to universities that displayed a higher impact score before the "relative" figure was calculated and rounded off—as in clinical medicine, for example, where the Oregon Health & Science University cites-per-paper score of 9.96 slightly edged the 9.94 cites posted by Johns Hopkins. When the impact score itself happened to be identical, priority went to the university that produced a greater number of papers.)

A slightly different ranking for these 12 universities can be obtained by calculating their average placements (that is, by taking the sum of their ranks and then dividing by the number of appearances). By this measure, Yale scored the highest average placement with a score of 2.67, followed MIT at 3.00, then Harvard (3.80), Princeton (4.40), Stanford and Penn (5.00), UC San Diego (5.33), Caltech (5.60), U. Washington (5.63), UC Berkeley (6.10), UC San Francisco (6.60), and Columbia (7.20).

# Top Ten Universities in Biological Science Fields, 2001-2005

Clinical Medicine ≥1,200 papers				Plant & Animal Sciences ≥300 papers				Molecular Biology & Genetics ≥500 papers			
Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)
1	Harvard University	18,800	+103	1	Univ. Calif., Berkeley	987	+129	1	MIT	665	+184
2	Vanderbilt University	4,065	+102	2	University of Arizona	721	+123	2	Rockefeller University	517	+100
3	U. Massachusetts, Worcester	1,612	+94	3	Duke University	560	+115	3	Harvard University	3,277	+80
4	Stanford University	6,298	+93	4	Yale University	377	+115	4	Univ. Calif., San Diego	1,061	+76
5	Univ. Calif., San Diego	5,044	+93	5	Univ. Calif., Santa Barbara	357	+114	5	Yale University	1,034	+75
6	Univ. Texas, San Antonio	2,576	+90	6	Univ. Calif., San Diego	612	+113	6	Univ. Calif., San Francisco	1,238	+73
7	Tufts University	3,002	+88	7	Woods Hole Ocean. Inst.	588	+90	7	Columbia University	962	+64
8	Oregon Health & Sci. Univ.	3,111	+84	8	Harvard University	674	+80	8	Univ. Texas SW Med. Ctr., Dallas	660	+64
9	Johns Hopkins University	12,066	+84	9	Indiana University	345	+66	9	Stanford University	1,178	+62
10	Emory University	4,857	+84	10	University of Missouri	1,134	+59	10	Univ. Calif., Berkeley	886	+60
Neurosciences & Behavior ≥300 papers				Immunology ≥300 papers				Pharmacology ≥200 papers			
Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)
1	MIT	319	+107	1	Stanford University	604	+90	1	Vanderbilt University	356	+124
2	Rockefeller University	444	+105	2	Yale University	552	+83	2	Univ. Calif., San Diego	225	+118
3	Stanford University	1,410	+77	3	University of Chicago	312	+60	3	University of Pennsylvania	244	+84
4	Washington University	1,297	+74	4	Washington University	595	+56	4	Columbia University	200	+80
5	Baylor Coll. of Medicine	733	+71	5	Harvard University	2,131	+51	5	Univ. Calif., San Francisco	377	+80
6	Univ. Calif., San Francisco	1,547	+69	6	Univ. Calif., San Francisco	923	+47	6	U. North Carolina, Chapel Hill	629	+70
7	Univ. Texas SW Med. Ctr., Dallas	672	+69	7	University of Iowa	340	+46	7	University of Washington	469	+69
8	Harvard University	3,486	+64	8	New York University	360	+44	8	University of Colorado	281	+61
9	Emory University	1,115	+57	9	Univ. Calif., San Diego	430	+37	9	Indiana University	223	+61
10	Univ. Calif., Berkeley	469	+57	10	University of Washington	852	+36	10	Johns Hopkins University	377	+59
Agricultural Sciences ≥300 papers				Ecology/Environment ≥300 papers				Biology & Biochemistry ≥500 papers			
Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)
1	Oregon State University	420	+65	1	Univ. Calif., Santa Barbara	399	+113	1	Univ. Texas SW Med. Ctr., Dallas	1,311	+92
2	Univ. Wisconsin, Madison	765	+56	2	Stanford University	457	+95	2	Harvard University	4,562	+78
3	Cornell University	824	+56	3	Univ. Wisconsin, Madison	712	+85	3	Univ. Southern California	842	+73
4	Rutgers University	381	+53	4	Harvard University	536	+80	4	University of Virginia	1,068	+72
5	Univ. Calif., Davis	1,104	+52	5	University of Washington	682	+76	5	Yeshiva University	897	+71
6	University of Minnesota	648	+46	6	Arizona State University	355	+72	6	Washington University	1,671	+68
7	Pennsylvania State University	609	+38	7	U. North Carolina, Chapel Hill	322	+67	7	Oregon Health & Sci. Univ.	727	+63
8	Washington State University	539	+26	8	Michigan State University	557	+65	8	Stanford University	1,645	+63
9	University of Nebraska	592	+24	9	Univ. Calif., Berkeley	996	+59	9	Duke University	1,508	+59
10	Univ. Illinois, Urbana	674	+19	10	Duke University	554	+57	10	Univ. Calif., San Francisco	1,846	+58

SOURCE: Thomson Scientific University Science Indicators

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# Harvard, Stanford, Berkeley: Top Trio in "Top Ten" Finale

## Highest-Impact U.S. Universities in Physical and Social Science Fields, 2001-2005

Physics ≥500 papers				Chemistry ≥500 papers			
Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)
1	Univ. Calif., Santa Cruz	630	+225	1	Caltech	1,224	+170
2	University of Pennsylvania	1,244	+224	2	Harvard University	1,387	+159
3	Univ. Calif., Irvine	1,091	+217	3	Yale University	866	+151
4	Harvard University	2,033	+203	4	MIT	1,865	+146
5	University of Washington	1,645	+202	5	Northwestern University	1,429	+144
6	Boston University	1,151	+197	6	Univ. Calif., San Diego	997	+122
7	University of Minnesota	1,552	+184	7	Stanford University	1,573	+122
8	Stanford University	2,807	+181	8	Rice University	621	+121
9	Columbia University	1,267	+173	9	Carnegie Mellon University	707	+116
10	Rice University	667	+169	10	Univ. Calif., Berkeley	2,870	+113

SOURCE: Thomson Scientific University Science Indicators

This is the second of two installments in the latest "Top Ten" roundup of U.S. university research in 21 main fields, as measured by the citation impact of research papers published by the top 100 federally funded universities between 2001 and 2005 and cited during the same period. The first part of the survey appeared in the previous issue and featured Top Ten rankings in nine biological or biomedical fields (see *Science Watch*, 17[6]: 1-2, November/December 2006). This second part features 12 listings in the physical and social sciences (11 tables, along with one ranking presented in the text below). Physics and chemistry appear above, with the other tables on page 2. All the rankings are based on "relative citation impact"—that is, each university's average-citations-per-paper score for the five-year period compared, on a percentage basis, against the world impact average in each field.

To sum up the overall results as reported in the first part of the survey: Harvard achieved the highest number of Top Ten placements, appearing in 15 of the 21 fields. Stanford was close behind with 13 placements. Overall, a dozen schools distinguished themselves with at least five Top Ten appearances apiece (Harvard, Stanford, University of California [UC] at Berkeley, the

University of Washington, MIT, Yale, UC San Diego, Princeton, the University of Pennsylvania, Caltech, UC San Francisco, and Columbia). Together, these universities accounted for 85 Top Ten placements—more than 40% of the 210 available spots in the 21 fields.

In addition to their dominance of the overall survey, Harvard and Stanford stand out among the physical- and social-science rankings presented here. Harvard appears in eight of the listings, Stanford in seven. UC Berkeley, meanwhile, earns Top Ten honors in six of the accompanying fields, while the University of Washington, MIT, Princeton, and Caltech each appear in five.

Space restrictions prevented inclusion of a table for one of the social-science fields, education. In that subject area, among universities that published at least 100 papers between 2001 and 2005, the University of Michigan ranked highest in relative impact, scoring 162% above the citations-per-paper average in the field. The University of Wisconsin was next (161% above the field average), followed by Vanderbilt (+141%), Stanford (+103%), the University of Georgia (+85%), the University of Texas, Austin (+84%), UCLA (+79%), Harvard (+78%), the University of Illinois, Urbana (+64%), and Ohio State (+57%).

# Top Ten Universities in Physical and Social Science Fields, 2001-2005

Geosciences ≥300 papers				Space Science ≥500 papers				Materials Science ≥300 papers			
Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)
1	Harvard University	562	+156	1	University of Chicago	676	+251	1	University of Washington	306	+291
2	Georgia Inst. of Technology	415	+122	2	Princeton University	915	+233	2	Univ. Calif., Santa Barbara	373	+221
3	Univ. Maryland, Baltimore	349	+113	3	Pennsylvania State Univ.	735	+143	3	Univ. Calif., Berkeley	566	+193
4	University of Washington	1,409	+97	4	Johns Hopkins University	1,358	+122	4	MIT	635	+123
5	Princeton University	544	+96	5	Univ. Calif., Santa Cruz	697	+109	5	Northwestern University	520	+76
6	Oregon State University	713	+94	6	University of Michigan	566	+101	6	Pennsylvania State Univ.	868	+70
7	Univ. Maryland, College Park	740	+94	7	Univ. Calif., Los Angeles	819	+99	7	Univ. Illinois, Urbana	564	+59
8	MIT	900	+88	8	Caltech	2,828	+90	8	Univ. Florida	386	+52
9	University of Miami	521	+85	9	Univ. Calif., Berkeley	1,558	+85	9	North Carolina State Univ.	538	+37
10	Woods Hole Ocean. Inst.	1,078	+84	10	Columbia University	537	+81	10	Univ. Calif., Davis	376	+37
Mathematics ≥200 papers				Engineering ≥300 papers				Computer Science ≥100 papers			
Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)
1	Stanford University	430	+188	1	Yale University	389	+181	1	Caltech	226	+170
2	Univ. Calif., Berkeley	736	+125	2	Harvard University	617	+128	2	MIT	654	+142
3	University of Minnesota	552	+120	3	Univ. Calif., Santa Barbara	815	+138	3	Univ. Calif., Berkeley	495	+137
4	Harvard University	376	+111	4	Princeton University	981	+129	4	Stanford University	507	+115
5	University of Washington	404	+110	5	Univ. Calif., Los Angeles	1,243	+129	5	Univ. Illinois, Urbana	496	+110
6	New York University	320	+102	6	University of Pennsylvania	519	+127	6	University of Colorado	186	+109
7	Princeton University	459	+99	7	Stanford University	1,741	+126	7	Univ. Calif., Davis	217	+103
8	University of Michigan	590	+92	8	Caltech	1,338	+120	8	University of Washington	280	+96
9	University of Pennsylvania	230	+83	9	Vanderbilt University	414	+117	9	University of Minnesota	318	+94
10	Caltech	292	+83	10	Michigan State University	801	+102	10	Cornell University	229	+93
Psychology/Psychiatry ≥300 papers				Economics & Business ≥300 papers				Law ≥100 papers			
Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)	Rank	Institution	# of Papers	Relative Impact (%)
1	Washington University	540	+122	1	MIT	709	+169	1	Yale University	186	+196
2	Carnegie Mellon University	317	+110	2	University of Chicago	575	+153	2	Harvard University	331	+153
3	Univ. Texas SW Med. Ctr., Dallas	314	+103	3	Harvard University	1,117	+149	3	Univ. Texas, Austin	120	+138
4	University of Pittsburgh	1,261	+100	4	Princeton University	345	+147	4	Univ. Calif., Berkeley	264	+112
5	Case Western Reserve U.	381	+100	5	University of Pennsylvania	840	+141	5	University of Virginia	166	+109
6	University of Rochester	442	+99	6	Carnegie Mellon University	301	+121	6	Columbia University	194	+88
7	Stanford University	1,006	+98	7	U. North Carolina, Chapel Hill	318	+113	7	University of Michigan	125	+77
8	Duke University	879	+91	8	Univ. Maryland, College Park	513	+108	8	University of Chicago	316	+73
9	Emory University	540	+89	9	Univ. Calif., Los Angeles	506	+107	9	New York University	228	+71
10	Univ. Calif., Irvine	373	+87	10	New York University	662	+103	10	Cornell University	130	+61

SOURCE: Thomson Scientific University Science Indicators

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