



ASSOCIATION OF RESEARCH LIBRARIES

July 24, 2006

To: Directors of ARL Libraries
From: Martha Kyrillidou, Director, ARL Statistics and Service Quality Programs
Re: 2004-05 ARL membership criteria index (principal component scores) – REVISED DOCUMENT

The 2004-05 ARL membership criteria index and index formula are attached. Please note that the index includes only university library members of ARL. The index is a summary measure of relative size among the university library members of the Association and its sole purpose is to serve as an indicator for membership that is quantitative in nature in addition to other qualitative evidence. Both qualitative and quantitative factors support the assessment of research libraries within the Association.

The index is composed of five quantitative data elements that have been the historical variables in which ARL university libraries most resemble one another, and does not attempt to measure a library's services, quality of collections, or success in meeting the needs of users. Some of the large anomalies in the index rankings may be explained by the qualitative evidence provided in the form of footnotes to the survey, especially anomalies in the data in terms of excluding and/or including branch libraries from year to year.

Information about index scores from earlier years as well as Excel versions of the index tables will be available at: <http://www.arl.org/stats/factor.html>. Principles and Procedures for Membership in the Association of Research Libraries are available at: <http://www.arl.org/stats/qualcov.html>. For more information on the ARL Membership Committee agenda, please contact Julia Blixrud, Assistant Executive Director, External Relations <jblix@arl.org>.

As part of the Task Force on New Ways of Measuring Collections, chaired by Brinley Franklin (University of Connecticut), ARL has engaged highly respected quantitative and qualitative research methodologists to mine the ARL statistics and develop new ways of describing research libraries in a changing environment. At the October ARL membership meeting we expect to have reports from the qualitative and quantitative research currently underway. These reports will inform discussions to better describe the increasing complexity of the research library environment.

Colleen Cook (Texas A&M), chair of the ARL Statistics and Assessment Committee, is working closely with ARL staff on issues related to the ways electronic resources are included and represented in the annual statistical surveys. Based on feedback received from ARL libraries we are attempting to identify and explore alternate improved ways for collecting reliable data for electronic resources through the ARL Supplementary Statistics (E-metrics) data.

If you have any questions regarding the ARL membership criteria index or any other aspect of the ARL Statistics and Measurement Program, please contact me <martha@arl.org>. Thank you for your continuing support and contributions to the ARL Statistics and Measurement data gathering efforts and we look forward to seeing you at the October membership meeting.

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Principal Component Scores
ARL Membership Criteria Index, 2004-05

Attached is the ARL membership criteria index for 2004-05, arranged both in alphabetic and rank order. The index is a summary measure of relative size among the university members of the association. The index scores are rounded to two decimal places, which may give the appearance of identical scores (and thus ranks) for some institutions; in fact, when the complete principal component score is calculated, it is extended to at least five places. Each institution has a unique result and place in the rank order.

The five variables used in the index were determined by factor analysis of 22 variables originally and represent the elements in which ARL university libraries most resemble one another.* The index does not attempt to measure a library's services, quality of collections, or success in meeting the needs of users. In comparing any individual library to ARL medians or other ARL members, evaluations must always be made within the context of local goals and characteristics.

The index is calculated using five data elements:

- number of volumes held
- number of volumes added (gross)
- number of current serials received
- total operating expenditures
- number of professional plus support staff

* Note: The 5-variable index was adopted as a membership criterion in May 1987 by the ARL membership. Previous membership criteria were based on a 10-variable index, which had been adopted by the membership in May 1980. The elements used in the 10-variable index were: (1) number of volumes held, (2) number of volumes added (gross), (3) number of microform units held, (4) number of current serials received, (5) expenditures for library materials, (6) expenditures for binding, (7) total salary and wage expenditures, (8) other operating expenditures, (9) number of professional staff, and (10) number of support staff.

ARL MEMBERSHIP CRITERIA INDEX
Five-variable Formula for ARL Principal Component Score

log refers to natural log (ln)

Formula for 2004-05 (34 founding members)

$$\begin{aligned} &.449766 \times \log \text{ of volumes held} \\ + &.365633 \times \log \text{ of volumes added (gross)} \\ + &.476575 \times \log \text{ of current serials} \\ + &.489405 \times \log \text{ of total library expenditures} \\ + &.494003 \times \log \text{ of total professional plus support staff} \\ - &27.639982 \end{aligned}$$

ARL MEMBERSHIP INDEX, 2004-05
 (Based on Five ARL Variables and Analysis of 34 ARL University Founding Members)

Rank	Institution	Index	Rank	Institution	Index
1	HARVARD	2.51	58	GEORGETOWN	-1.06
2	YALE	1.67	59	LAVAL	-1.12
3	TORONTO	1.31	60	OKLAHOMA STATE	-1.12
4	COLUMBIA	1.27	61	LOUISIANA STATE	-1.12
5	MICHIGAN	1.24	62	COLORADO	-1.13
6	CALIF., BERKELEY	1.16	63	SUNY-BUFFALO	-1.17
7	ILLINOIS, URBANA	0.93	64	NOTRE DAME	-1.19
8	CALIF., LOS ANGELES	0.78	65	BROWN	-1.20
9	CORNELL	0.78	66	NEBRASKA	-1.20
10	TEXAS	0.62	67	DARTMOUTH	-1.28
11	WISCONSIN	0.57	68	BOSTON COLLEGE	-1.29
12	PENNSYLVANIA STATE	0.49	69	WAYNE STATE	-1.30
13	INDIANA	0.42	70	BOSTON	-1.32
14	PRINCETON	0.40	71	MISSOURI	-1.32
15	WASHINGTON	0.32	72	WESTERN ONTARIO	-1.33
16	MINNESOTA	0.21	73	FLORIDA STATE	-1.35
17	NORTH CAROLINA	0.17	74	ROCHESTER	-1.39
18	NEW YORK	0.16	75	SOUTHERN ILLINOIS	-1.39
19	CHICAGO	0.05	76	MIT	-1.43
20	ALBERTA	0.04	77	PURDUE	-1.43
21	PENNSYLVANIA	-0.04	78	YORK	-1.44
22	VIRGINIA	-0.08	79	HAWAII	-1.46
23	PITTSBURGH	-0.08	80	ILLINOIS, CHICAGO	-1.47
24	BRITISH COLUMBIA	-0.13	81	CALIF., SANTA BARBARA	-1.51
25	OHIO STATE	-0.18	82	CALIF., IRVINE	-1.51
26	RUTGERS	-0.20	83	GEORGE WASHINGTON	-1.56
27	FLORIDA	-0.22	84	ALABAMA	-1.57
28	TEXAS A&M	-0.23	85	MASSACHUSETTS	-1.57
29	NORTH CAROLINA STATE	-0.29	86	NEW MEXICO	-1.57
30	JOHNS HOPKINS	-0.30	87	TEMPLE	-1.58
31	IOWA	-0.30	88	IOWA STATE	-1.58
32	DUKE	-0.34	89	LOUISVILLE	-1.59
33	ARIZONA	-0.36	90	SYRACUSE	-1.59
34	NORTHWESTERN	-0.40	91	WASHINGTON STATE	-1.63
35	MONTREAL	-0.42	92	MANITOBA	-1.65
36	GEORGIA	-0.49	93	CALIF., RIVERSIDE	-1.69
37	WASHINGTON U.-ST. LOUIS	-0.49	94	HOUSTON	-1.74
38	SOUTHERN CALIFORNIA	-0.54	95	SUNY-ALBANY	-1.80
39	CALIF., SAN DIEGO	-0.58	96	COLORADO STATE	-1.81
40	EMORY	-0.59	97	SASKATCHEWAN	-1.81
41	ARIZONA STATE	-0.59	98	OHIO	-1.81
42	MCGILL	-0.61	99	VIRGINIA TECH	-1.85
43	KANSAS	-0.62	100	AUBURN	-1.89
44	UTAH	-0.72	101	TULANE	-1.90
45	MICHIGAN STATE	-0.77	102	QUEEN'S	-1.91
46	MARYLAND	-0.85	103	DELAWARE	-1.93
47	CINCINNATI	-0.88	104	GEORGIA TECH	-1.93
48	OKLAHOMA	-0.89	105	OREGON	-1.98
49	TENNESSEE	-0.92	106	SUNY-STONY BROOK	-1.99
50	BRIGHAM YOUNG	-0.94	107	CASE WESTERN RESERVE	-2.01
51	VANDERBILT	-0.96	108	RICE	-2.01
52	MIAMI	-0.97	109	MCMASTER	-2.03
53	CALIF., DAVIS	-0.98	110	WATERLOO	-2.27
54	KENTUCKY	-0.98	111	KENT STATE	-2.47
55	TEXAS TECH	-0.98	112	HOWARD	-2.50
56	SOUTH CAROLINA	-1.04	113	GUELPH	-2.87
57	CONNECTICUT	-1.04			

ARL MEMBERSHIP INDEX, 2004-05
 (Based on Five ARL Variables and Analysis of 34 ARL University Founding Members)

Rank	Institution	Index	Rank	Institution	Index
84	ALABAMA	-1.57	52	MIAMI	-0.97
20	ALBERTA	0.04	5	MICHIGAN	1.24
33	ARIZONA	-0.36	45	MICHIGAN STATE	-0.77
41	ARIZONA STATE	-0.59	16	MINNESOTA	0.21
100	AUBURN	-1.89	71	MISSOURI	-1.32
70	BOSTON	-1.32	76	MIT	-1.43
68	BOSTON COLLEGE	-1.29	35	MONTREAL	-0.42
50	BRIGHAM YOUNG	-0.94	66	NEBRASKA	-1.20
24	BRITISH COLUMBIA	-0.13	86	NEW MEXICO	-1.57
65	BROWN	-1.20	18	NEW YORK	0.16
6	CALIF., BERKELEY	1.16	17	NORTH CAROLINA	0.17
53	CALIF., DAVIS	-0.98	29	NORTH CAROLINA STATE	-0.29
82	CALIF., IRVINE	-1.51	34	NORTHWESTERN	-0.40
8	CALIF., LOS ANGELES	0.78	64	NOTRE DAME	-1.19
93	CALIF., RIVERSIDE	-1.69	98	OHIO	-1.81
39	CALIF., SAN DIEGO	-0.58	25	OHIO STATE	-0.18
81	CALIF., SANTA BARBARA	-1.51	48	OKLAHOMA	-0.89
107	CASE WESTERN RESERVE	-2.01	60	OKLAHOMA STATE	-1.12
19	CHICAGO	0.05	105	OREGON	-1.98
47	CINCINNATI	-0.88	21	PENNSYLVANIA	-0.04
62	COLORADO	-1.13	12	PENNSYLVANIA STATE	0.49
96	COLORADO STATE	-1.81	23	PITTSBURGH	-0.08
4	COLUMBIA	1.27	14	PRINCETON	0.40
57	CONNECTICUT	-1.04	77	PURDUE	-1.43
9	CORNELL	0.78	102	QUEEN'S	-1.91
67	DARTMOUTH	-1.28	108	RICE	-2.01
103	DELAWARE	-1.93	74	ROCHESTER	-1.39
32	DUKE	-0.34	26	RUTGERS	-0.20
40	EMORY	-0.59	97	SASKATCHEWAN	-1.81
27	FLORIDA	-0.22	56	SOUTH CAROLINA	-1.04
73	FLORIDA STATE	-1.35	38	SOUTHERN CALIFORNIA	-0.54
83	GEORGE WASHINGTON	-1.56	75	SOUTHERN ILLINOIS	-1.39
58	GEORGETOWN	-1.06	95	SUNY-ALBANY	-1.80
36	GEORGIA	-0.49	63	SUNY-BUFFALO	-1.17
104	GEORGIA TECH	-1.93	106	SUNY-STONY BROOK	-1.99
113	GUELPH	-2.87	90	SYRACUSE	-1.59
1	HARVARD	2.51	87	TEMPLE	-1.58
79	HAWAII	-1.46	49	TENNESSEE	-0.92
94	HOUSTON	-1.74	10	TEXAS	0.62
112	HOWARD	-2.50	28	TEXAS A&M	-0.23
80	ILLINOIS, CHICAGO	-1.47	55	TEXAS TECH	-0.98
7	ILLINOIS, URBANA	0.93	3	TORONTO	1.31
13	INDIANA	0.42	101	TULANE	-1.90
31	IOWA	-0.30	44	UTAH	-0.72
88	IOWA STATE	-1.58	51	VANDERBILT	-0.96
30	JOHNS HOPKINS	-0.30	22	VIRGINIA	-0.08
43	KANSAS	-0.62	99	VIRGINIA TECH	-1.85
111	KENT STATE	-2.47	15	WASHINGTON	0.32
54	KENTUCKY	-0.98	91	WASHINGTON STATE	-1.63
59	LAVAL	-1.12	37	WASHINGTON U.-ST. LOUIS	-0.49
61	LOUISIANA STATE	-1.12	110	WATERLOO	-2.27
89	LOUISVILLE	-1.59	69	WAYNE STATE	-1.30
92	MANITOBA	-1.65	72	WESTERN ONTARIO	-1.33
46	MARYLAND	-0.85	11	WISCONSIN	0.57
85	MASSACHUSETTS	-1.57	2	YALE	1.67
42	MCGILL	-0.61	78	YORK	-1.44
109	MCMASTER	-2.03			