

March 1, 2000

To: Directors of ARL Libraries

From: Martha Kyrillidou, Senior Program Officer for Statistics and Measurement

Re: 1998-99 ARL membership criteria index (principal component scores)

Attached is the 1998-99 ARL membership criteria index and index formula. 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 membership criterion for those institutions. The index comprises the five quantitative data elements 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.

The index allows ARL to evaluate potential new members (-1.65 is the required minimum index score), as well as to track the maintenance of membership requirement for current members (-2.25).

Note that decisions on membership issues have been suspended pending the recommendations of a work group (William Potter, Chair; Paula Kaufman; and Carolynne Presser) the ARL Board established during its February 11-12, 1999, meeting. The ARL Board of Directors established this work group to review the process and criteria for consideration of membership in the Association and to recommend steps that would contribute to a more streamlined and simpler review process. The Board suspended membership actions for the duration of the review process. The ARL Membership Criteria Index is compiled and made available to members but not applied to membership decisions. A report to the Board is expected at the May Board meeting.

In the meantime, we welcome your comments and suggestions.

Principal Component Scores
ARL Membership Criteria Index, 1998-99

Attached is the ARL membership criteria index for 1998-99, 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 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
Based on Analysis of 35 ARL University Founding Members

log refers to natural log (ln)

Formula for 1998-99

| | | |
|---|-----------|--|
| | .449102 | x log of volumes held |
| + | .405265 | x log of volumes added (gross) |
| + | .366379 | x log of current serials |
| + | .475420 | x log of total library expenditures |
| + | .486750 | x log of total professional plus support staff |
| - | 26.317663 | |

Formula for 1997-98

| | | |
|---|-----------|--|
| | .450661 | x log of volumes held |
| + | .390950 | x log of volumes added (gross) |
| + | .371973 | x log of current serials |
| + | .474190 | x log of total library expenditures |
| + | .493037 | x log of total professional plus support staff |
| - | 26.208982 | |

Formula for 1996-97

| | | |
|---|-----------|--|
| | .450685 | x log of volumes held |
| + | .415670 | x log of volumes added (gross) |
| + | .365231 | x log of current serials |
| + | .490525 | x log of total library expenditures |
| + | .496206 | x log of total professional plus support staff |
| - | 26.687408 | |

Formula for 1995-96

| | | |
|---|-----------|--|
| | .448778 | x log of volumes held |
| + | .424527 | x log of volumes added (gross) |
| + | .362613 | x log of current serials |
| + | .489682 | x log of total library expenditures |
| + | .501905 | x log of total professional plus support staff |
| - | 26.709022 | |

Formula for 1994-95

| | | |
|--|--------|-----------------------|
| | .45257 | x log of volumes held |
|--|--------|-----------------------|

$$\begin{aligned}
& + .43972 \times \log \text{ of volumes added (gross)} \\
& + .37510 \times \log \text{ of current serials} \\
& + .48582 \times \log \text{ of total library expenditures} \\
& + .50587 \times \log \text{ of total professional plus support staff} \\
& - 27.005126
\end{aligned}$$

Formula for 1993-94

$$\begin{aligned}
& .45967 \times \log \text{ of volumes held} \\
& + .43752 \times \log \text{ of volumes added (gross)} \\
& + .37164 \times \log \text{ of current serials} \\
& + .49059 \times \log \text{ of total library expenditures} \\
& + .50566 \times \log \text{ of total professional plus support staff} \\
& - 27.10026
\end{aligned}$$

Formula for 1992-93

$$\begin{aligned}
& .45574 \times \log \text{ of volumes held} \\
& + .41440 \times \log \text{ of volumes added (gross)} \\
& + .38671 \times \log \text{ of current serials} \\
& + .49271 \times \log \text{ of total library expenditures} \\
& + .50912 \times \log \text{ of total professional plus support staff} \\
& - 26.9517566
\end{aligned}$$

Formula for 1991-92

$$\begin{aligned}
& .44009 \times \log \text{ of volumes held} \\
& + .42578 \times \log \text{ of volumes added (gross)} \\
& + .37942 \times \log \text{ of current serials} \\
& + .48798 \times \log \text{ of total library expenditures} \\
& + .49357 \times \log \text{ of total professional plus support staff} \\
& - 26.57196
\end{aligned}$$

Formula for 1990-91

$$\begin{aligned}
& .43637 \times \log \text{ of volumes held} \\
& + .39714 \times \log \text{ of volumes added (gross)} \\
& + .37515 \times \log \text{ of current serials} \\
& + .48664 \times \log \text{ of total library expenditures} \\
& + .49424 \times \log \text{ of total professional plus support staff} \\
& - 26.07462
\end{aligned}$$

Formula for 1989-90

.42982 x log of volumes held
+ .43066 x log of volumes added (gross)
+ .36762 x log of current serials
+ .48583 x log of total library expenditures
+ .47342 x log of total professional plus support staff
- 26.08514

ARL MEMBERSHIP INDEX, 1998-99
 (Based on Five ARL Variables and Analysis of 35 ARL University Founding Members)

| Rank | Institution | Index | Rank | Institution | Index |
|------|-------------------------|-------|------|---------------------------|-------|
| 1 | HARVARD | 2.45 | 57 | MCGILL | -1.11 |
| 2 | YALE | 1.36 | 58 | OKLAHOMA STATE | -1.13 |
| 3 | STANFORD | 1.26 | 59 | BOSTON | -1.16 |
| 4 | TORONTO | 1.12 | 60 | WAYNE STATE | -1.19 |
| 5 | CALIFORNIA, BERKELEY | 1.12 | 61 | TENNESSEE | -1.19 |
| 6 | CALIFORNIA, LOS ANGELES | 1.07 | 62 | MISSOURI | -1.20 |
| 7 | MICHIGAN | 0.99 | 63 | TEXAS TECH | -1.23 |
| 8 | ILLINOIS, URBANA | 0.91 | 64 | HAWAII | -1.24 |
| 9 | COLUMBIA | 0.86 | 65 | ILLINOIS, CHICAGO | -1.28 |
| 10 | CORNELL | 0.86 | 66 | LOUISIANA STATE | -1.29 |
| 11 | TEXAS | 0.79 | 67 | NEBRASKA | -1.29 |
| 12 | WASHINGTON | 0.54 | 68 | MIT | -1.30 |
| 13 | PENNSYLVANIA STATE | 0.52 | 69 | CALIFORNIA, SANTA BARBARA | -1.32 |
| 14 | MINNESOTA | 0.42 | 70 | OKLAHOMA | -1.33 |
| 15 | INDIANA | 0.41 | 71 | BROWN | -1.33 |
| 16 | WISCONSIN | 0.25 | 72 | OHIO | -1.33 |
| 17 | PRINCETON | 0.22 | 73 | CALIFORNIA, IRVINE | -1.35 |
| 18 | NORTH CAROLINA | 0.19 | 74 | GEORGE WASHINGTON | -1.41 |
| 19 | PENNSYLVANIA | 0.15 | 75 | PURDUE | -1.43 |
| 20 | CHICAGO | 0.15 | 76 | YORK | -1.43 |
| 21 | OHIO STATE | 0.13 | 77 | DARTMOUTH | -1.44 |
| 22 | VIRGINIA | 0.05 | 78 | MIAMI | -1.49 |
| 23 | NEW YORK | 0.04 | 79 | MASSACHUSETTS | -1.53 |
| 24 | DUKE | 0.03 | 80 | OREGON | -1.53 |
| 25 | RUTGERS | -0.17 | 81 | BRIGHAM YOUNG | -1.53 |
| 26 | IOWA | -0.18 | 82 | WASHINGTON STATE | -1.53 |
| 27 | ARIZONA | -0.23 | 83 | WESTERN ONTARIO | -1.55 |
| 28 | GEORGIA | -0.26 | 84 | IOWA STATE | -1.55 |
| 29 | PITTSBURGH | -0.27 | 85 | TEMPLE | -1.56 |
| 30 | ALBERTA | -0.28 | 86 | SYRACUSE | -1.56 |
| 31 | BRITISH COLUMBIA | -0.31 | 87 | FLORIDA STATE | -1.57 |
| 32 | NORTHWESTERN | -0.33 | 88 | ROCHESTER | -1.58 |
| 33 | FLORIDA | -0.35 | 89 | HOWARD | -1.60 |
| 34 | TEXASA&M | -0.39 | 90 | DELAWARE | -1.62 |
| 35 | NORTH CAROLINA STATE | -0.40 | 91 | AUBURN | -1.63 |
| 36 | ARIZONA STATE | -0.41 | 92 | LAVAL | -1.65 |
| 37 | SOUTHERN CALIFORNIA | -0.43 | 93 | VIRGINIA TECH | -1.68 |
| 38 | CALIFORNIA, DAVIS | -0.44 | 94 | RICE | -1.72 |
| 39 | MARYLAND | -0.53 | 95 | TULANE | -1.72 |
| 40 | JOHNS HOPKINS | -0.53 | 96 | ALABAMA | -1.72 |
| 41 | MICHIGAN STATE | -0.58 | 97 | KENT STATE | -1.74 |
| 42 | KANSAS | -0.65 | 98 | COLORADO STATE | -1.74 |
| 43 | EMORY | -0.65 | 99 | SOUTHERN ILLINOIS | -1.75 |
| 44 | WASHINGTON U.-ST. LOUIS | -0.69 | 100 | HOUSTON | -1.75 |
| 45 | UTAH | -0.70 | 101 | SUNY-ALBANY | -1.83 |
| 46 | CALIFORNIA, SAN DIEGO | -0.71 | 102 | CALIFORNIA, RIVERSIDE | -1.88 |
| 47 | GEORGETOWN | -0.82 | 103 | GEORGIA TECH | -1.92 |
| 48 | CONNECTICUT | -0.87 | 104 | QUEEN'S | -1.97 |
| 49 | KENTUCKY | -0.90 | 105 | CASE WESTERN RESERVE | -2.01 |
| 50 | SOUTH CAROLINA | -0.92 | 106 | SASKATCHEWAN | -2.05 |
| 51 | NOTRE DAME | -0.95 | 107 | MANITOBA | -2.08 |
| 52 | COLORADO | -0.96 | 108 | SUNY-STONY BROOK | -2.14 |
| 53 | VANDERBILT | -1.00 | 109 | WATERLOO | -2.17 |
| 54 | SUNY-BUFFALO | -1.02 | 110 | MCMASTER | -2.19 |
| 55 | NEW MEXICO | -1.08 | 111 | GUELPH | -2.77 |
| 56 | CINCINNATI | -1.08 | | | |

ARL MEMBERSHIP INDEX, 1998-99
 (Based on Five ARL Variables and Analysis of 35 ARL University Founding Members)

| Rank | Institution | Index | Rank | Institution | Index |
|------|---------------------------|-------|------|------------------------|-------|
| 96 | ALABAMA | -1.72 | 7 | MICHIGAN | 0.99 |
| 30 | ALBERTA | -0.28 | 41 | MICHIGAN STATE | -0.58 |
| 27 | ARIZONA | -0.23 | 14 | MINNESOTA | 0.42 |
| 36 | ARIZONASTATE | -0.41 | 62 | MISSOURI | -1.20 |
| 91 | AUBURN | -1.63 | 68 | MIT | -1.30 |
| 59 | BOSTON | -1.16 | 67 | NEBRASKA | -1.29 |
| 81 | BRIGHAM YOUNG | -1.53 | 55 | NEW MEXICO | -1.08 |
| 31 | BRITISH COLUMBIA | -0.31 | 23 | NEW YORK | 0.04 |
| 71 | BROWN | -1.33 | 18 | NORTH CAROLINA | 0.19 |
| 5 | CALIFORNIA, BERKELEY | 1.12 | 35 | NORTH CAROLINA STATE | -0.40 |
| 38 | CALIFORNIA, DAVIS | -0.44 | 32 | NORTHWESTERN | -0.33 |
| 73 | CALIFORNIA, IRVINE | -1.35 | 51 | NOTREDAME | -0.95 |
| 6 | CALIFORNIA, LOS ANGELES | 1.07 | 72 | OHIO | -1.33 |
| 102 | CALIFORNIA, RIVERSIDE | -1.88 | 21 | OHIOSTATE | 0.13 |
| 46 | CALIFORNIA, SANDIEGO | -0.71 | 70 | OKLAHOMA | -1.33 |
| 69 | CALIFORNIA, SANTA BARBARA | -1.32 | 58 | OKLAHOMASTATE | -1.13 |
| 105 | CASE WESTERN RESERVE | -2.01 | 80 | OREGON | -1.53 |
| 20 | CHICAGO | 0.15 | 19 | PENNSYLVANIA | 0.15 |
| 56 | CINCINNATI | -1.08 | 13 | PENNSYLVANIA STATE | 0.52 |
| 52 | COLORADO | -0.96 | 29 | PITTSBURGH | -0.27 |
| 98 | COLORADO STATE | -1.74 | 17 | PRINCETON | 0.22 |
| 9 | COLUMBIA | 0.86 | 75 | PURDUE | -1.43 |
| 48 | CONNECTICUT | -0.87 | 104 | QUEEN'S | -1.97 |
| 10 | CORNELL | 0.86 | 94 | RICE | -1.72 |
| 77 | DARTMOUTH | -1.44 | 88 | ROCHESTER | -1.58 |
| 90 | DELAWARE | -1.62 | 25 | RUTGERS | -0.17 |
| 24 | DUKE | 0.03 | 106 | SASKATCHEWAN | -2.05 |
| 43 | EMORY | -0.65 | 50 | SOUTH CAROLINA | -0.92 |
| 33 | FLORIDA | -0.35 | 37 | SOUTHERN CALIFORNIA | -0.43 |
| 87 | FLORIDA STATE | -1.57 | 99 | SOUTHERN ILLINOIS | -1.75 |
| 74 | GEORGE WASHINGTON | -1.41 | 3 | STANFORD | 1.26 |
| 47 | GEORGETOWN | -0.82 | 101 | SUNY-ALBANY | -1.83 |
| 28 | GEORGIA | -0.26 | 54 | SUNY-BUFFALO | -1.02 |
| 103 | GEORGIA TECH | -1.92 | 108 | SUNY-STONY BROOK | -2.14 |
| 111 | GUELPH | -2.77 | 86 | SYRACUSE | -1.56 |
| 1 | HARVARD | 2.45 | 85 | TEMPLE | -1.56 |
| 64 | HAWAII | -1.24 | 61 | TENNESSEE | -1.19 |
| 100 | HOUSTON | -1.75 | 11 | TEXAS | 0.79 |
| 89 | HOWARD | -1.60 | 34 | TEXAS A&M | -0.39 |
| 65 | ILLINOIS, CHICAGO | -1.28 | 63 | TEXAS TECH | -1.23 |
| 8 | ILLINOIS, URBANA | 0.91 | 4 | TORONTO | 1.12 |
| 15 | INDIANA | 0.41 | 95 | TULANE | -1.72 |
| 26 | IOWA | -0.18 | 45 | UTAH | -0.70 |
| 84 | IOWA STATE | -1.55 | 53 | VANDERBILT | -1.00 |
| 40 | JOHNS HOPKINS | -0.53 | 22 | VIRGINIA | 0.05 |
| 42 | KANSAS | -0.65 | 93 | VIRGINIATECH | -1.68 |
| 97 | KENT STATE | -1.74 | 12 | WASHINGTON | 0.54 |
| 49 | KENTUCKY | -0.90 | 82 | WASHINGTON STATE | -1.53 |
| 92 | LAVAL | -1.65 | 44 | WASHINGTON U.-ST.LOUIS | -0.69 |
| 66 | LOUISIANA STATE | -1.29 | 109 | WATERLOO | -2.17 |
| 107 | MANITOBA | -2.08 | 60 | WAYNESTATE | -1.19 |
| 39 | MARYLAND | -0.53 | 83 | WESTERN ONTARIO | -1.55 |
| 79 | MASSACHUSETTS | -1.53 | 16 | WISCONSIN | 0.25 |
| 57 | MCGILL | -1.11 | 2 | YALE | 1.36 |
| 110 | MCMASTER | -2.19 | 76 | YORK | -1.43 |
| 78 | MIAMI | -1.49 | | | |