

## 1990 AMS LIBRARY SURVEY

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This document is a combined file that includes the summary report and final report of a 1990 survey of mathematics research libraries in doctoral-granting institutions in the United States and Canada. The survey was carried out by an ad hoc committee of the American Mathematical Society. The summary report was published in the *Notices of the American Mathematical Society* **38**, no. 10 (1991), 1258–1262. The final report includes budget data from institutions that agreed to make their budget data public. We thank the American Mathematical Society for permission to archive the report in this form.

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# **AMERICAN MATHEMATICAL SOCIETY 1990 LIBRARY SURVEY**

## **FINAL REPORT**

**(with budget figures)**

Nancy D. Anderson and James Rovnyak

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## **Introduction**

### **Formation of ad-hoc committee and charge**

In a meeting in November 1988, the Executive Committee of the Society discussed a letter written by James Rovnyak concerning the question of maintaining data on mathematics research libraries. The minutes state:

"The EC agreed that it would be extremely helpful to the mathematical community to have authoritative data available on mathematical libraries in the United States and their role in the production of mathematics research. It was decided that an ad-hoc committee should be appointed to study this idea and develop a list of possible survey questions for consideration by the EC."

An ad-hoc committee was formed consisting of Nancy Anderson, Richard Askey, Robert Doran, Dorothy McGarry, James Rovnyak (chair), George Seligman, Mary Ann Southern, and Jack Weigel. It was given the charge to, "Develop a list of possible survey questions in order to assemble data on mathematical libraries in the United States and their role in the production of mathematical research." A letter of 17 May 1989 from Robert Fossum to the committee informing them of the charge further states, "it is easy to imagine that this committee or an heir could play an important role in tracking data and subject matter retrieval by mathematicians. Such questions as how mathematicians use databases, what types of literature they use, what form this literature should take, come quickly to mind. So in addition to the limited charge above, it would be appropriate for the committee to consider all aspects of use by mathematicians of all resources found in mathematics libraries."

The ad-hoc committee began work in the fall of 1989 and met at the annual meeting of the Society in Louisville in January 1990. The committee consulted other mathematicians and librarians, as well as experts in library statistics. In the spring of 1990 the committee wrote a questionnaire to survey mathematics research libraries in the doctoral-granting institutions in the United States and Canada (AMS peer groups I, II, III, VI). Throughout the process, the Data Committee was kept informed of activities. The survey was run with the assistance of Monica Foulkes and staff in Providence in the fall of 1990. Preliminary results were presented in a panel discussion organized by the Association of Research Libraries at the annual meeting of the Society in San Francisco in January 1991. Summaries of the main results were published in the NOTICES of the AMS (December 1991, Vol. 38, no. 10), and a panel discussion was held on the topic of the survey at the meeting of the Society in Baltimore in January 1992.

At an early stage, the ad-hoc committee decided that a principal objective is to assist librarians to build better mathematics libraries. While the NOTICES report (December 1991, Vol. 38, no. 10) was in some sense complete from the point of view of the Society, it was deemed inadequate for the purpose of arguing for resources in individual library systems. Librarians often need to know what specific peer institutions are doing. It is not uncommon to share institution-specific data in library surveys. A key feature of the AMS 1990 Library Survey is that it gave respondents the opportunity to state that their data are public and the name of their institution may be identified. Over all groups, with 138 libraries participating, 80% designated their data as public. These respondents will receive a special report with names of institutions identified (that is, those who released their results for this purpose).

The ad-hoc committee has since been converted to a standing committee of the Society. It is anticipated that the 1990 Library Survey will be updated periodically. No formal discussion has taken place when it would be appropriate to do it again, but a time frame of 5 years is perhaps about right. This report is intended to serve the purpose to document the first survey, so that the experience of the 1990 survey will be available.

Part 2 of this report is a reprint of the published summary of results of the 1990 library survey. Appendix D is a reprint of a statement of cataloging procedures of the Library of Congress. This statement was solicited by Dorothy McGarry, a member of the AMS Library Committee. The Library of Congress gave permission to publish the statement.

# Inside the AMS

**Groups I and II** include the leading departments of mathematics in the U.S. according to the 1982 assessment of Research-Doctorate Programs conducted by the Conference Board of Associated Research Councils in which departments were rated according to the quality of their graduate faculty.<sup>1</sup>

**Group I** is composed of 39 departments with scores in the 3.0–5.0 range.

**Group II** is composed of 43 departments with scores in the 2.0–2.9 range.

**Group III** contains the remaining U.S. departments reporting a doctoral program.

**Group IV** contains U.S. departments (or programs) of statistics, biostatistics, and biometrics reporting a doctoral program.

**Group V** contains U.S. departments (or programs) in applied mathematics/applied science, operations research, and management science which report a doctoral program.

**Group Va** is applied mathematics/applied science; **Group Vb** is operations research and management science.

**Group VI** contains doctorate-granting departments (or programs) in the mathematical sciences in Canadian universities.

**Group M** contains U.S. departments granting a master's degree as the highest graduate degree.

**Group B** contains U.S. departments granting a baccalaureate degree only.

<sup>1</sup> These findings were published in *An Assessment of Research-Doctorate Programs in the United States: Mathematical and Physical Sciences*, edited by Lyle V. Jones, Gardner Lindzey, and Porter E. Coggeshall, National Academy Press, Washington, D.C., 1982. The information on mathematics, statistics, and computer science was presented in digest form in the April 1983 issue of *Notices*, pages 257–267, and an analysis of the above classifications was given in the June 1983 *Notices*, pages 392–393. For a listing of departments in Groups I and II see April 1988 *Notices*, pages 532–533.

The survey questionnaire was designed by the AMS Library Committee, consisting of Nancy D. Anderson (Co-chair), Richard A. Askey, Robert S. Doran, Dorothy McGarry, James L. Rovnyak (Co-chair), George B. Seligman, Mary Ann Southern, and John W. Weigel II. To comment on this report or seek additional data from the AMS Library Survey, write Nancy D. Anderson, Mathematics Library, University of Illinois, 1409 West Green Street, Urbana, IL 61801, or James L. Rovnyak, Department of Mathematics, Mathematics-Astronomy Building, University of Virginia, Charlottesville, VA 22903-3199.

## Mathematics Research Libraries: A 1990 Snapshot

*Nancy D. Anderson and James L. Rovnyak*

The health of mathematics libraries is of concern not only to mathematicians, who see libraries as a vital part of the infrastructure of mathematics, but also to librarians faced with problems such as spiraling journal costs and space shortages. These problems come at a time of budget cutbacks which aggravate the situation in many institutions. Prospects for the future are not entirely bleak, however. For example, new opportunities exist in the area of electronic media and database searching. Hard data on mathematics libraries are scarce, and as libraries evolve into the 1990s it will be helpful to establish some basic information.

This report is a summary of results from an AMS Library Survey of Group I, II, III and VI departments (see the accompanying box for definitions). Questionnaires were sent out in the fall of 1990. For data concerning mathematics libraries in non-doctoral institutions, see the report by the Conference Board of the Mathematical Sciences on the Survey of Undergraduate Programs in the Mathematical Sciences and Computer Science, 1990, currently in preparation (see News and Announcements, this issue).

The Library Survey was directed to chairs of mathematics departments who were asked to forward the questionnaire to their mathematics library. A few institutions have more than one mathematics library, and, where known, these were surveyed separately. Therefore, data are accordingly broken into subgroups I-1, I-2, II-1, II-2, etc., where a library is classified -1 or -2 depending on whether it is the larger or smaller of two mathematics libraries in one institution. All libraries identified as departmental reading rooms were given the -2 classification. The focus of this survey was on academic libraries. A few public, governmental, and industrial libraries were invited to supply data. One of those did respond, but their data are not included.

The response rate for Group I was 35 libraries (32 in I-1, 3 in I-2) from 33 of 39 institutions (85%). In Group II, returns were received from 34 libraries (28 in II-1, 6 in II-2) in 32 of 43 institutions (74%). In Group III, returns were received from 57 libraries (55 in III-1, 2 in III-2) in 57 of 86 institutions (66%). There were returns from 12 libraries

in 12 of 25 institutions in Group VI (48%).

Questionnaires were intended to be filled out by librarians, who were asked to consult with experienced mathematics faculty library users on attitudinal questions. In institutions where the mathematics library is part of a combined subject, science/engineering, or general library, the data refer only to mathematics holdings.

Libraries have a variety of structures, and the first question is, simply, what are they?

- A Branch library containing only mathematics
- B Departmental reading room
- C Branch library containing mathematics together with one or several of the mathematical sciences, such as statistics, computer science, etc.
- D Branch library containing mathematics together with one or several sciences such as physics, astronomy, etc.
- E Part of a science/engineering library
- F Part of a general library
- G Other, such as mathematics education

**TABLE 1**  
**Type of Library**

	A	B	C	D	E	F	G	Total
Group I:	5	2	15	7	3	3	0	35
Group II:	3	5	8	4	9	5	0	34
Group III:	1	2	6	5	15	27	1	57
Group VI:	1	0	4	0	5	2	0	12
Total	10	9	33	16	32	37	1	138

The subject branch libraries (A-D in Table 1) comprise 83% of the total in Group I, 50% in Group II, 25% in Group III, and 42% in Group VI. Over all groups, 93% of the subject branch libraries are located in the same building as the mathematics faculty. If all libraries are counted (A-G in Table 1), then in Group I, 83% report that the mathematics library is housed in the same building as the mathematics faculty, 59% in Group II, 28% in Group III, and 55% in Group VI.

Excluding departmental reading rooms, most mathematics libraries have a professional librarian at least part time. There are some exceptions: 4 in Group I, 3 in Group II, 8 in Group III, and 2 in Group VI have none.

The Library Survey did not request circulation figures. Respondents were asked to describe the level of usage by three different groups (Table 2).

What are the characteristics of a good mathematics library? Respondents were invited to name mathematics libraries they felt were among the best in the world. The top nominees in the United States were Princeton (36), Harvard (30), Berkeley (27), Illinois (27), Michigan (20). These were followed by Brown (12), Courant (9), Stanford (8), Chicago (7), MIT (7), Institute for Advanced Study (7), Yale (6), Cornell (5), Wisconsin (5), and the Library of Congress (5). The foreign institutions most frequently

cited were Oberwolfach (10), Cambridge (9), Göttingen (7), Mittag-Leffler (5), and Oxford (5).

**TABLE 2**  
**Level of Usage by (A) Math Faculty and Graduate Students, (B) Other Nonmath Faculty and Graduate Students, (C) Undergraduates**

	None	Light	Moderate	Heavy	Very Heavy
Group I:					
(A) Math			15%	47%	38%
(B) Other		15%	47%	35%	3%
(C) Undergrads	3%	38%	44%	16%	
Group II:					
(A) Math			40%	37%	23%
(B) Other	3%	20%	40%	33%	3%
(C) Undergrads	14%	42%	29%	14%	
Group III:					
(A) Math	2%	15%	39%	37%	7%
(B) Other	2%	38%	48%	12%	
(C) Undergrads	8%	54%	31%	4%	4%
Group VI:					
(A) Math		11%	22%	33%	33%
(B) Other		25%	50%	25%	
(C) Undergrads	17%		83%		

No doubt many will find their favorite mathematics library not on the list, perhaps unjustly, and the implied ranking by frequency of citation can be argued in many cases. The point is not to name the "best" mathematics libraries, whatever that means, but to give an idea what the top standard should be. Returns were received from 12 of the American libraries named above. The median number of currently received mathematics journals for the group is 480; for 10 of the 12 able to supply the figure, the median number of volumes in the library is 39,500. Of the 12, 11 are of the subject branch type (A-D in Table 1), 11 are located in the same building as the mathematics faculty, and 11 have a professional librarian at least part time. In 8 of the 12, faculty do not have keys for after-hours access; these libraries are open an average of 90 hours per week when classes are in session. In 4 of the 12, faculty do have keys; these libraries are open an average of 55 hours per week when classes are in session.

The "best libraries" question had a second part: what qualities make such libraries the best? The question was unstructured, and respondents were free to express qualities in their own words. The responses are grouped into broad categories with frequency of citation indicated by numbers in parentheses at the end:

### The Collection

Depth and breadth of the collection (73)

Good collection of older and historical materials, includes rare books (10)

MathSci and other electronic media inhouse, online catalog (8)

Complete runs of journals going back to first volume (7)

### The Environment

Ease of use, access for browsing, current journal display, organization and arrangement of books, hours open (26)

Pleasant environment, quiet reading area, good lighting (12)

Location in or near the mathematics department, separate from the main library (11)

Adequate space, under one roof, nothing in remote storage (9)

### The Staff and Support

Knowledgeable staff, good service, professional librarian (14)

Intelligent collection development, quick to get recent works, good coverage of international literature (9)

Adequate budget and institutional support (7)

The collection in a mathematics library includes current journals, back volumes of journals, books, electronic media, and microfiche and microfilm. Scope is variable; significant additional holdings in either statistics or computer science were reported in many cases. Some mathematics libraries further include such fields as operations research, actuarial mathematics, applied mathematics, mathematical physics, mechanics, applied statistics, and mathematics education.

The number of mathematics journals in the world is not exactly known. *Mathematical Reviews* looks at 1800 periodicals in selecting papers to review, and it reviews 400 journals cover-to-cover (see the Abbreviations of Names of Serials at the end of the annual *Author Index for Mathematical Reviews*; this list also includes monographic series). A recent list of mathematics journals, compiled by the Research Libraries Group and judged to be of significant value for scholarly inquiry, contains about 900 titles (for information write: RLG Long-Term Serials Project in Mathematics © 1989, The Research Libraries Group, Mountain View, CA 94041-1100).

The number of journal subscriptions is reported in Table 3. The total number of volumes including monographs is given in Table 4. See Table 6 (next page) for an overall rating of the collection.

Bound journals circulate in about 63% of the mathematics libraries, with varying policies on loan periods. About two thirds of the respondents said that they have a security system. Overall, 71% house bound mathematics journals together in one area, and 68% display current unbound journals separately from other subjects.

The powerful searching tools of electronic media are making their way into mathematics libraries. Most mathematics libraries for the Group I, II, III, and VI departments have their catalogs either partly or completely online; some

libraries additionally maintain microform backups to parts of their catalogs and serials lists. Many mathematics libraries today offer access to MathSci in some form (Table 5, see next page).

**TABLE 3**  
**Number of Currently Received Mathematics Journal Titles**

	I-1	I-2	II-1	II-2	III-1	III-2	VI	Total
0-49				1	3			4
50-99		2		1	9	1		13
100-149	1	1	1	1	10	1	2	17
150-199	1		4		8		2	15
200-249	2		4		8		2	16
250-299	7		5		7			19
300-349	2		4		5		4	15
350-399	4		5		1			10
400-449	1		2				1	4
450-499	3		2				1	6
500-549	8				2			10
550-599	1							1
600-649								
650-699								
700-749								
750-799	1		1					2
Median	393		293		168		272	261*

\* This median excludes the I-2, II-2, III-2 libraries.

**TABLE 4**  
**Total Number of Mathematics Volumes (in thousands)**

	I-1	I-2	II-1	II-2	III-1	III-2	VI	Total
0-4K				2		2		4
5-9K			1	1	7			9
10-14K					6		1	7
15-19K	2	1	4		7		1	15
20-24K	3	1	2		3			9
25-29K	2		5		7		1	15
30-34K	7		1		8		2	18
35-39K	5		2					7
40-44K	2		2		1			5
45-49K	1						1	2
50-54K	1		1		1			3
55-59K	1							1
60-64K	1							1
65-69K					1			1
70-74K								
75-80K	1							1
Median	34K		25K		20K		28K	26K*

\* This median excludes the I-2, II-2, III-2 libraries.

Only about one third of the libraries reported any use of microfiche or microfilm. Microfiche and microfilm are used

to preserve archival copies of high-use journals, old journals and back runs, technical reports, and dissertations. Level of use is typically minimal. Modern technology offers other possibilities. For example, Cornell University in collaboration with Xerox and the Committee on Preservation and Access will scan old books, including 500 in mathematics, store the images in electronic form suitable for printing at 600 dpi, then reprint new copies of the books on acid-free paper to be returned to the library. Additional copies for other libraries and individuals can be printed from the electronic file.

**TABLE 5**  
**Electronic Media**  
**Form of Catalog in the Mathematics Library**

	I	II	III	VI	Total
manual only	3*	6**	6***		15
partly online	20	12	21	4	57
access from offices (&)	16	12	14	2	44
completely online	14	16	30	7	67
access from offices	14	14	26	5	59

**Products Available Inhouse in the Mathematics Library**

	I	II	III	VI	Total
MathSci: Full database	2				2
access from offices	1				1
MathSci: CD ROM (@)	16	9	9	2	36
access from offices	1				1
SCI: CD ROM (#)	10	3	8	3	24
access from offices	1				1

**Products Available via a Vendor in the Mathematics Library**

	I	II	III	VI	Total
MathSci	25	20	34	6	85
SCI	22	21	34	7	84

\* 1 in I-1, 2 in I-2

\*\* 1 in II-1, 5 in II-2

\*\*\* 5 in III-1, 1 in III-2

& This is a subset of the previous line and means access from suitably equipped faculty offices.

@ There were many non-responses on this question; and the figures do not show sales of the MathSci CD ROM since the survey was run. These figures should be interpreted as a 1990 baseline; use is increasing rapidly.

# SCI = Science Citation Index

The environment or atmosphere for scholarly work is an important attribute of a mathematics library. Some mathematics libraries are a joy to use, others less so. Factors which can detract from the atmosphere are poor lighting, noise, too hot or too cold, crowding, inadequate seating, excessive socializing, or use as an undergraduate study area or departmental copy center (Table 7).

Shortage of space is one of the most serious problems facing mathematics libraries today (Table 8). Some collections are being split, with older works and back copies of journals being put in remote storage or stacks of other libraries. While the problem is common in libraries generally, it hits mathematics especially hard because older works in mathematics tend to retain their value longer than in most of the other sciences.

**TABLE 6**  
**Overall Rating of the Collection**  
**as it Serves the Research Programs**  
**of the Mathematics Department**

	Poor	Fair	Good	Very Good	Excellent
Group I:					
Journals			21%	44%	35%
Monographs			18%	55%	27%
Electronic Media	14%	29%	29%	14%	14%
Group II:					
Journals	3%	10%	32%	45%	10%
Monographs	7%	14%	31%	38%	10%
Electronic Media	44%	22%	13%	13%	9%
Group III:					
Journals	8%	23%	33%	29%	8%
Monographs	11%	20%	30%	28%	11%
Electronic Media	27%	34%	18%	16%	5%
Group VI:					
Journals		17%	25%	42%	17%
Monographs	8%	33%	42%	17%	
Electronic Media	25%	75%			

**TABLE 7**  
**Overall Rating of the Environment as it Applies**  
**to the Atmosphere for Scholarship**

	Poor	Fair	Good	Very Good	Excellent
I	2	6	7	17	3
II	2	5	8	12	4
III	6	21	12	13	4
VI		6	4	2	

**TABLE 8**  
**Describe Space Problem in the Mathematics**  
**Library**

	None	Mild	Moderate	Severe	Crisis
Group I	3%	11%	26%	40%	20%
Group II	18%	3%	47%	21%	12%
Group III	18%	9%	25%	36%	13%
Group VI	8%	17%	33%	33%	8%



When quarters become cramped, librarians place books on top of stacks and radiators, in window sills and reading carrels, and on the floor. A serious space problem has implications for the usefulness of the collection, browsing older literature, and the environment for scholarly work. In a follow-up question (Table 9), librarians were asked to estimate the percentage of volumes in other locations because of the space shortage and to give the figure as a percentage of a whole if all volumes were under one roof.

**TABLE 9**  
**Percentage of Volumes in Other Locations due to Space Shortage**

	I		II		III		VI	
	Bound	Other	Bound	Other	Bound	Other	Bound	Other
	Jrnls		Jrnls		Jrnls		Jrnls	
none	10	11	11	10	17	15	4	4
1-9%	5	6	4	5	2	5	3	
10-19%	4	5	6	2	8	4	1	1
20-29%	3				3	2		
30-39%					3			
40-49%	2	1			1			
50-59%						1		
60-69%	1				1	2		
70-79%					1			
80-89%		1		1*		1		
90-100%	1		3*	2*	1*	1*		

\* All of these are departmental reading rooms. Otherwise, the high figures come from libraries that are seriously split.

The other area of great stress in mathematics libraries is money. The AMS Library Survey asked for budget figures, but it was difficult for respondents to provide figures that could be easily compared and tabulated. Partially in anticipation of this situation, librarians were given the opportunity to share their budget information with others willing to do the same. A special report which includes

institutional budget figures will be circulated privately among the participating respondents.

### Conclusions

There are many positive results. The median number of currently received mathematics journals in Group I, excluding departmental reading rooms and second libraries, is a healthy 393. The level of satisfaction in the overall rating of collections is positive in the Group I and II schools. Almost all mathematics libraries have their catalogs either completely or partly online, 62% have MathSci available through a vendor, and many are buying the MathSci CD ROM.

The fact that half of the Group I libraries responding subscribe to fewer than 393 journals is cause for concern. Much has been said regarding rapidly rising journal costs, and this low subscription rate is possibly due to the combination of higher costs and serious budget shortfalls.

An important problem that becomes apparent from the survey is the shortage of space. Unless more space is provided to house collections, it seems inevitable that the system as we know it will change, with older and lesser used works increasingly moved to other locations. In Group I, 60% of respondents report a severe to crisis space problem. The figure is a disturbing 50% for the group of libraries nominated as among the best in the world (based on 12 returns in this group). While shortage of space hits the older more comprehensive collections the hardest, few libraries are immune to the problem of where and how to shelve books and journals. Not only do individuals at the largest research universities benefit from the "home" collection, but mathematicians at smaller universities and colleges with fewer titles depend on these collections through interlibrary loan as well as personal visits. There is no indication that electronic media will significantly ease the space problem in library collections in the near future.

It is in the interest of mathematicians to help ensure that the comprehensive collections survive. Mathematicians need to concern themselves with advocating both the quality and adequacy of the collections and the space to hold them. In particular, they need to demand the required investment by the library and campus administrations.

# AMERICAN MATHEMATICAL SOCIETY 1990 LIBRARY SURVEY

## Supplemental Information and Institution-Specific Data

(with budget figures)

Nancy D. Anderson and James Rovnyak

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## INTRODUCTION

Summaries of the main results of the survey were published in the NOTICES of the American Mathematical Society, Vol. 38, no. 10, December 1991, 1258-1262. See this report for basic definitions and background and additional data on Questions 3, 4, 5, 8, and 9. As in the NOTICES report, where institutions have more than one mathematics library, the larger is designated -1 and the smaller -2. All departmental reading rooms are designated -2.

The survey gave respondents the opportunity to state that their data are public and the name of their institution may be identified. Over all groups, with 138 libraries participating, 80% designated their data as public. What follows is a special supplemental report on institution-specific data. It will be sent to those respondents who released their results for this purpose.

## QUESTION 1. STRUCTURE OF THE MATHEMATICS LIBRARY

### 1a. Which of the structures best describes the Mathematics Library

The list is by AMS peer groups, with codes to indicate how institutions are identified below. The first number to the right indicates type of library:

1. Branch library of a university library system containing only mathematics
2. Departmental reading room
3. Branch library of a university library system, containing mathematics together with one or several of the mathematical sciences, such as statistics, computer science, etc.
4. Branch library of a university library system, containing mathematics together with one or several sciences, such as physics, astronomy, etc.
5. Part of a science/engineering library
6. Part of a general library
7. Other (describe)

The libraries marked (2) are either second libraries in one institution or departmental reading rooms. See Notes 1-3 in Appendix A.

The following libraries made their data public, and institution-specific data are reported for them. The order of listing reflects the order in which responses were tabulated. This order is retained in most of the questions for which data are reported.

#### GROUP I

Harvard-Birkhoff	1 (2)
Harvard-Cabot	6 (reclassify as 5)
Brown U.	4
Princeton U.	4 (Note in App. B)
Rutgers U.	3
Penn State U.	3
U. Maryland (College Park)	4 (Note in App. B)
Johns Hopkins U.	6
U. Virginia	4
U. North Carolina	3
Washington U. (St. Louis)	1
U. Illinois (Urbana)	1
U. Chicago	3
U. Minnesota	3
U. Michigan	3
Indiana U.	4
Ohio State U.	3
U. Washington	3
U. California, Berkeley	7 (reclassify 3)

Stanford U.	3
U. California, San Diego	5
Caltech	6
UCLA-EMS	4
UCLA-reading room	2 (2)
U. Utah	1
Rice U.	6
Cornell U.	3
Northwestern U.	3
U. Wisconsin	1
Yale U.	1

## GROUP II

Rensselaer Poly. Inst.	6 (main library)
Syracuse U.	3
U. Pittsburgh	3
Virginia Poly. and State U.	6
North Carolina State U.	2 (2)
Duke U.	4
Florida State U.	5
U. Kansas (Lawrence)	5
U. Iowa (Iowa City)	3
Michigan State U.	3
Wayne State U.	5
U. Notre Dame	1
U. Kentucky	3
Vanderbilt U.	5
U. Florida (Gainesville)	5
U. Oregon	3
U. Southern California	5
U. Colorado (Boulder)	4
U. Oklahoma	4
Louisiana State U.	6
Tulane U.	1
U. California, Riverside	2 (2)
Iowa State U.	2 (2)
U. Rochester	5

## GROUP III

Adelphi U.	7 (reclassify 5)
Bryn Mawr College	4
George Washington U.	6
U. Maryland (Baltimore)	6
U. South Carolina	1

Clemson U.	6
Emory U.	6
Kansas State U. (Manhattan)	4
U. Missouri (Rolla)	5
U. Missouri (Columbia)	3
Northern Illinois U.	6
Marquette U.	5
U. Wisconsin (Milwaukee)	6
Ind-Purdue U. (Indianapolis)	5
U. Cincinnati	3
Kent State U.	3
Memphis State U.	3
Florida Atlantic U.	6
U. Alaska	6
Idaho State U.	6
U. Wyoming	5
U. Colorado (Denver)	6
U. North Texas	5
U. Arkansas	6
Texas Tech. U.	6
Western Michigan U.	4
Southern Ill. U. Carbondale	5
Arizona State U.	5
U. California, Irvine	4
St. Louis U.	6
U. Alabama, Birmingham	6
U. Hawaii	6
American U.	6
U. Texas at Arlington	5
Wichita St. U.	6

#### GROUP VI

McMaster U.	5
U. British Columbia	3
McGill U.	3
U. Toronto	3
U. Alberta	3
U. Calgary	6
York U.	5
Queen's University	1
U. Windsor	6
U. Manitoba	5

The following libraries either did not make their data public or were unable to supply budget figures. Their data are included in the summaries but not included in the institution-specific results.

#### Group I

MIT	2 (2)
Brandeis U.	5
NYU Courant	3
Columbia	3
SUNY Stony Brook	4

#### Group II

Dartmouth College	3
SUNY Buffalo	4
Iowa State U.	6
U. Arizona	2 (2)
U. Tennessee	6
Temple U	3
U. Connecticut	1
Rensselaer Poly. Inst.	5 (reclassify 2)
U. New Mexico	2 (2)
U. Georgia	5.

#### Group III

Tufts U.	5
Illinois State U. (Normal)	7 Math Ed
Montana State U.	6
U. Mississippi	6
U. Alabama (Tuscaloosa)	5
U. Southern Florida (Tampa)	6
Washington State U.	4 (reclassify 5)
New Mexico State U.	2 (2)
Brigham Young	6
U. Idaho	2 (2)
U. Northern Colorado	6
Texas A&M	6
Southern Methodist U.	5
U. Southern Louisiana	6
U. Texas at Dallas	6
Colorado State U.	6
West Virginia U.	3
U. California (Santa Cruz)	5
U. New Hampshire	5

North Dakota State U.	6
U. Nebraska (Lincoln)	3
Air Force Inst. Tech.	5

**Group VI**

U. Ottawa	5
U. Sherbrooke	5

**OTHER:**

Mathematical Sci. Res. Inst.

**1b. Is the Mathematics Library in the same building as the mathematics faculty?**

	Yes	No
Group I:	29	6*
Group II:	20	14
Group III:	16	41
Group VI:	6	5

\*Brandeis, Brown, Hopkins, UC San Diego, Cal Tech, Rice. Indiana U. was switched from "no" to "yes" because the two buildings which they distinguished function as one. See Note 2 in Appendix A.

**1c. Do your data include significant additional holdings in statistics, computer science, other areas (identify).**

	Statistics	Computer Science	Other*
Group I:	18	7	4
Group II:	17	10	3
Group III:	28	18	4
Group VI:	5	3	0

\*Group I: Rutgers-operations research; Michigan-actuarial mathematics; Cornell-applied mathematics; Wisconsin-mathematical physics and mechanics. Group II: U. Iowa-actuarial mathematics; Rochester-operations research. Group III: N. Dakota State-all other sciences; Washington State-astronomy; U. N. Colorado-applied statistics and mathematics education; S. Illinois Carbondale-operations research.



## QUESTION 2. POLICIES AND OPERATION OF THE MATHEMATICS LIBRARY

2a. Operation/policies: open stacks for browsing, bound journals together, current journals displayed separately, interlibrary loan, database searching, security system

	I		II		III		VI	
	yes	no	yes	no	yes	no	yes	no
Open stacks for browsing	35	0	34	0	56	0	12	0
Bound jrnls together	28	7	24	8	35	20	8	4
Unbound jrnls displayed together	29	6	24	10	32	24	8	4
Interlibrary loan	30	5	29	5	53	3	11	1
Database searching by staff	27	8	25	8	45	11	9	3
A security system	24	11	19	14	42	14	7	5

2b. Number of reader spaces in the Mathematics Library

	I-1	I-2	II-1	II-2	III-1	III-2	VI
1-4	2						1
5-9			1	2	1	1	
10-14	3		2	1	3	1	
15-19	1		1		2		
20-24		3	1		5		1
25-30	2		2	2	1		
30-39	1		1		2		2
40-49			2				
50-59	2				1		
60-69	1		1		2		
70-79	1				2		
80-89	2						
90-99	2		1				1
100-499	8		4		8		2
500-999	1		3		3		
1,000-2,000			1		4		1
2,000-3,000			1				

2c. Do bound journals circulate? If YES, all or some?

	Yes	No	All	Some
Group I-1	24	8	21	3
Group I-2	1	1	1	
Group II-1	17	11	15	2
Group II-2	1	5	1	
Group III-1	32	19	29	1
Group III-2	1	1		1
Group VI	8	4	8	

2d. Loan periods for mathematics faculty, mathematics graduate students, undergraduates, other users (if different)?

Group I	faculty		grad students		undergrads		other	
	I-1	I-2	I-1	I-2	I-1	I-2	I-1	I-2
Noncirculating		1		1		1	4	1
1-23 hrs	1		1		1		1	
1-6 days							10	
1-4 weeks	9		14		29			
5-9 weeks			1					
10-14 weeks	5		8					
15-19 weeks	11		6				1	
20-24 weeks								
25-29 weeks	1		1					
30-35 weeks	3							
indefinite	2	1		1	1			

Group II	faculty		grad students		undergrads		other	
	II-1	II-2	II-1	II-2	II-1	II-2	II-1	II-2
Noncirculating	1	2		2	1	2	1	
1-23 hrs		1		1				
1-6 days	2		2				1	
1-4 weeks	2		7	1	24	2	8	
5-9 weeks	1	1	4		1			
10-14 weeks	3	1	5	1				1
15-19 weeks	6		4					
20-24 weeks								
25-29 weeks	3		1					
30-35 weeks	8	1	3	1				
Indefinite	2		1					

Group III	faculty		grad students		undergrads		other	
	III-1	III-2	III-1	III-2	III-1	III-2	III-1	III-2
Noncirculating			3		4	1	4	
1-23 hrs			1		1			
1-6 days	5		4		2			
1-4 weeks	5		18		37		12	
5-9 weeks	1	1	5	1	1			
10-14 weeks	3		4		1		1	
15-19 weeks	17		13		2			
20-24 weeks	1							
25-29 weeks	2							
30-35 weeks	16		2					
indefinite	2	1	1	1	1			

Group VI	faculty		grad students		undergrads		other	
Noncirculating					1		3	
1-23 hrs								
1-6 days	2		2		2		1	
1-4 weeks	4		5		7		1	
5-9 weeks			2					

10-14 weeks	2	1
15-19 weeks	3	1
20-24 weeks		
25-29 weeks		
30-35 weeks		
Indefinite		

Notes on conversions: quarter = 12 weeks, semester = term = 16 weeks, and year = academic year = 32 weeks.

**2e. Number of FTE professional librarians, FTE support staff, FTE student assistants**

	I-1	I-2	II-1	II-2	III-1	III-2	VI
None	2	1	1	4	6	2	
0.1-0.4	1		1		1		3
0.5-0.9	2		2		1		1
1-1.9	17	1	10	1	12		
2-2.9					2		2
3-3.9			2		1		
4-4.9	2		2		3		2
5-9	3		2		7		
10-19			3		1		
20-29					4		1
30-39					1		
40-49	1		1		1		
50+					1		

**Number of FTE support staff:**

	I-1	I-2	II-1	II-2	III-1	III-2	VI
None			2	3	1	1	1
0.1-0.4	1					1	
0.5-0.9	2		4	1	2		
1-1.9	7	1	7	2	13		4
2-2.9	8		2		3		1
3-3.9	3				3		
4-4.9	1				1		
5-9	3		5		5		4
10-19	3		2		2		
20-29			1		1		
30-39			1				
40-49					2		
50+	1		1		4		1

Number of FTE student assistants:

	I-1	I-2	II-1	II-2	III-1	III-2	VI
None	1	1	2	3			2
0.1-0.4	1				3	2	1
0.5-0.9	5	1	2		1		1
1-1.9	3		6	1	5		
2-2.9	6		3		5		2
3-3.9	3				3		
4-4.9	2				4		
5-9	2		2		3		
10-19	1		2		3		1
20-29	1		3		2		
30-39	1				1		
40-49					1		
50+			1		2		

2f. Number of hours the library is open and staffed in a typical week: classes in session, summer session, between sessions.

Group I	In Session		Summer Session		Between Sessions	
	I-1	I-2	I-1	I-2	I-1	I-2
0						
1-9						
10-19					1	
20-29		1		1	2	1
30-39	1	1	2	1	3	1
40-49	5		13		16	
50-59	3		4		2	
60-69	3		4		2	
70-79	4		3		2	
80-89	3		3		1	
90-100	8		2			
100-110	4		1		1	
110-120	1					
120-130						

Group II	In Session		Summer Session		Between Sessions	
	II-1	II-2	II-1	II-2	II-1	II-2
0				1		1
1-9		1				
10-19		1				
20-29				1	1	
30-39	1		2		2	
40-49	3	3	7	3	12	4
50-59	1	1	2		2	
60-69	4		3		3	
70-79	2		2		1	
80-89	5		3		2	
90-100	5		4			
100-110	5		2		2	

110-119	1			1
120-130	1	1		

Group III	In Session		Summer Session		Between Sessions	
	III-1	III-2	III-1	III-2	III-1	III-2
0		1	1		1	1
1-9			1		1	
10-19	3		1			
20-29						
30-39			2		2	
40-49	3	1	10	1	24	
50-59	3		5		7	
60-69	3		4		4	
70-79	6		1		5	
80-89	5		15		1	
90-100	12		6			
100-110	13		4			
110-120	4					
120-130						

Group VI	In Session		Summer Session		Between Sessions	
0						
1-9						
10-19						
20-29			2			
30-39	2		2		3	
40-49	1		1		3	
50-59	1				1	
60-69	1		1			
70-79	1		2			
80-89	2		1		3	
90-100			1			
100-110	3					
110-120	1					
120-130						

2g. Do the mathematics faculty have keys? Do graduate students have keys (some or all)?

	Faculty		Graduate Students			
	Yes	No	Yes	No	Some	All
Group I-1	13	19	8	23	3	5
Group I-2	3		3			3
Group II-1	12	16	9	19	3	4
Group II-2	3	3	3	3	2	1
Group III-1	9	45	2	52	1	
Group III-2	2		1	1		1
Group VI	4	8	3	9	2	

**Comments to the preceding questions:**

**Group I**

Harvard-Birkhoff 2d. Indefinite loan period for all; non- circulating for non-math people

Harvard-Cabot:  
Brown 2d. No circulation off campus (except ILL)  
2e. Number of staff = total for all subjects

Princeton

Rutgers

Penn State

Maryland

Johns Hopkins

Virginia

North Carolina

Wash. U. (St. Louis)

Illinois (Urbana)

2d. No borrowing privileges except to UMd people

2d. For other outside users loan period depends on type of permit; math dept visitors treated same as UIUC faculty

2g. Do math faculty have keys? Only 6 of 100 old-timers have keys

Chicago

Minnesota

Michigan

Indiana

Ohio State

U. Washington

2g. Only a few have keys by special arrangement

2g. Graduate students have keys after passing preliminary exams

Berkeley

Stanford

San Diego

Caltech

2d. Journals do not circulate to the general public

2d. Other: formula, depending on type of material and type of patron

UCLA-EMS

UCLA-reading room

Utah

Rice

2f. Library is locked; all have keys

**Group II**

Rensselaer (main) \*

Syracuse

Pittsburgh

2d Other users (courtesy cards): 4 weeks

2e. The Mathematics Library is staffed by part-time undergraduate student employee .1 FTE professional librarian

VPI

N. C. State

Duke	2d. Others: indefinite to faculty; 4 weeks to non-math/physics grad students
Florida State	
Kansas	
Iowa	
Michigan State	
Wayne State	
Notre Dame	
Kentucky	
Vanderbilt	2c. No full time students; 6 hired every semester to shelve books/charge out books for patrons
Florida (Gainesville)	
Oregon	2d. Other: same as undergraduate (2 weeks for books)
Southern Cal	
Colorado (Boulder)	2d. Other: Journals do not circulate, books do to non-affiliated persons
Oklahoma	
Louisiana State	
Tulane	2d. Undergraduates: 1 month - do not use this library Other: 1 month
Cal-Riverside	2d. Undergraduate loan period: no journals; textbooks, if grading papers. Other: 1 quarter 2f. Open during math office hours
Rochester	
Group III	
Adelphi	
Bryn Mawr	2a. No. Bound math journals not together; interfiled with monograph 2d. Other users: alumnae = 4 weeks
George Washington	
Maryland (Baltimore)	
South Carolina	
Clemson	
Emory	2c. Bound journals circulate by special arrangement
Kansas State	
Missouri (Rolla)	2d. Others: Must obtain guest patron card
Missouri (Columbia)	
Northern Illinois	
Marquette	
Wisconsin (Milwaukee)	2a. Bound math journals shelved in several areas do not circulate except to faculty on 48hrs. 2d. Others = 3 months
Cincinnati	
Kent State	
Memphis State	

Florida Atlantic	2d. Math grad students in some instances get semester loan, if requested by professor
Alaska	
Idaho State	
Wyoming	2d. Number of renewals increase as length of loan period decreases (undergraduate-faculty)
North Texas	
Arkansas	2b. Number of reader spaces: 'enough'
Texas Tech	2d. Other: If someone joins Friends of the Library (\$20), then there is a maximum 3 week loan
Western Michigan	
Texas (Arlington)	
S. Illinois (Carbondale)	
Arizona State	
Cal-Irvine	2e. One librarian for mathematics and statistics
St. Louis U.	
Alabama (Birmingham)	2d Other: 14 days for Friends of Sterne Library
Hawaii	
American U.	
Texas (Arlington)	
Wichita St.	2d. Other: Non-circulating for non-university
Group VI	
McMaster	
British Columbia	
McGill	2d. Other: Determined by position in university (e.g., faculty, etc) 2e. Student assistants are lunch hour replacements for staff
Toronto	
Alberta	
Calgary	2e. Librarian responsible for math works in another building
York	
Queen's:	
Windsor:	
Manitoba:	



### QUESTION 3. SPACE IN THE MATHEMATICS LIBRARY

3d. What criteria are used to decide which volumes are removed to a different location.

#### GROUP I

Harvard-Birkhoff:	
Harvard-Cabot:	
Brown:	
Princeton:	
Rutgers:	Low use. Foreign language originals of translated journals.
Penn State:	Lending activity for books; age & language for journals
Maryland:	
Johns Hopkins:	
Virginia:	Older and lesser used materials, as determined by faculty.
North Carolina:	Relevance to current research, age; projected future use
Wash. U. (St. Louis)	i. Whether relevant to current research interests. ii. How old.
Illinois (Urbana):	Older textbook editions, and discontinued/cancelled journals go first; then it's based on evidence of circulation.
Chicago:	
Minnesota:	
Michigan:	1. Age of material. 2. Demonstrated level of usage. 3. Faculty members' opinions of current value of material.
Indiana:	Try to use info on frequency of use.
Ohio State:	
U. Washington:	Priority level of journal, usage, language
Berkeley:	When we store for the first time, later this year the following will be the first to go: Russian works not checked out in past 2 years & older volumes of serials for which we have duplicate sets.
Stanford:	Circulation or use, title, input from faculty.
San Diego:	Use data; how quickly the literature in the discipline ages.
Caltech:	Those that are perceived to be less used.
UCLA-EMS:	Low use; peripheral scope.
UCLA-reading room:	
Utah:	Use of journals, especially those with few issues and subscribed to before 1960.
Rice:	Cancelled and discontinued journal titles; duplicates.
Cornell:	
Northwestern:	Cutoff date for all older journals to be moved to storage. Books are moved to storage based on infrequent use.
Wisconsin:	Older books were looked at carefully, and those of less current interest were moved.
Yale:	Journal volumes in poor condition, titles not heavily used.

## GROUP II

Rensselaer (main): Use and age  
Syracuse:  
Pittsburgh: Age of materials. All these materials were moved prior to 1980.  
VPI:  
N. C. State: Our library is a working collection - all materials are in the main lib. except what we request or purchase.  
Duke: The types of material include old or foreign language textbooks, earlier editions of monographs, collected works, serial runs (particularly in foreign languages), ceased or cancelled periodicals, and older or less used periodicals.

Florida State:  
Kansas:  
Iowa:  
Michigan State: Importance to users and amount of use.  
Wayne State: Use. (low use items are sent to storage). Language. (Most items in remote storage at present are Russian language.)  
Notre Dame: Age and condition.  
Kentucky: Journals older than 1951 are shelved at the main library. Books that have not been used within the last 20 years, based on their value are either withdrawn or transferred to the main library.  
Vanderbilt: Age and volume of use.  
Florida (Gainesville): First we have moved journals that are either no longer being printed, have been cancelled, or are pre 1959.  
Oregon: Subject, date of imprint, circulation history.  
Southern Cal: Usage of materials  
Colorado (Boulder): Most Dewey classification books except collected works, Dewey Decimal bound journals prior to 1970 with little use.  
Oklahoma: 1. Usage in last 5 years. 2. Total usage. 3. Is the subscription current? 4. Is the title relevant to current research.  
Louisiana State: Is the item written in a language very few faculty can read?  
Tulane: Those from 1800s - 1950. Old journals.  
Cal-Riverside: Current journals are bound (once a year) when completed volumes are thick enough to be bound; then transferred  
Iowa St. (reading room): If other departments use the materials  
Rochester: Usage (estimated); faculty opinions

## GROUP III

Adelphi: Age and use  
Bryn Mawr:  
George Washington: If it hasn't circulated in at least 10 years; multiple copies; holdings of journals not currently received (after approximately 10 years).  
Maryland (Baltimore): Old volumes

South Carolina:  
 Clemson:  
 Emory: Age, subject, recent circulation  
 Kansas State: Age, use, space  
 Missouri (Rolla):  
 Missouri (Columbia): Frequency of usage and publication dates were used to select materials for transfer to remote storage facilities.  
  
 Northern Illinois:  
 Marquette:  
 Wisconsin (Milwaukee):  
 Indiana-Purdue (Ind.): Age and usage  
 Cincinnati: Age and usage  
 Kent State: NA - We are just arriving at the "full" status, but we'll be moving to a new building within 2 years.  
 Memphis State: No criteria  
 Florida Atlantic:  
 Alaska: Periodical backfiles older than 10 years of "little used" titles are located in "remote storage in same building."  
 Idaho State:  
 Wyoming: Use and date of coverage  
 North Texas: Age and frequency of use (decision made by librarians - not math dept)  
 Arkansas:  
 Texas Tech:  
 Western Michigan: Date of publication - older volumes put in storage.  
 Southern Illinois: Age and level of usage  
 Arizona State:  
 Cal-Irvine: Date of publication and use.  
 St. Louis U.:  
 Alabama (Birmingham): Duplicate copies and older editions are stored. (In 1987 Sterne Library had a building addition of 1.5 times the pre-1987 space)  
 Hawaii: We have removed seating for users to accommodate expansion of shelving.  
 American U.: Level of use, subject areas  
 Texas (Arlington): Bound periodicals published before 1945 and books published before 1975 are located in the central library.  
 Wichita St.:

#### GROUP VI

McMaster:  
 British Columbia:  
 McGill:  
 Toronto: Titles that are less in demand.  
 Alberta: Use, age, presence of multiple copies, relevance to current research

Calgary:  
 York:  
 Queen's: Use and date  
 Windsor:  
 Manitoba:

#### QUESTION 4. THE ENVIRONMENT

The questionnaire states: "These questions are attitudinal. Librarians may wish to consult experienced mathematics library users in answering them."

##### 4b. What are the major factors that affect environment?

###### Group I

Harvard-Birkhoff:	Lighting, noise
Harvard-Cabot:	Comfortable seating, full collection here, online catalogs, quiet
Brown:	Insufficient seating, variable heating and air conditioning control, not in Mathematics Dept.
Princeton	Relatively spacious with relatively secluded study areas
Rutgers	(1) Journals & monographs are readily available (2) Library serves as a desirable study space for a large undergraduate population (who do not, in general, use the collection). This causes crowding.
Penn State	
Maryland	Good lighting, seating, carpeting. Excellent collection. Good service.
Johns Hopkins	Crowding, no windows
Virginia	Overcrowding, noise, no large reading area, use as a copy center, socializing
North Carolina	Physical plant, ease of access, staff
Wash. U. (St. Louis)	Too little space for materials and users
Illinois (Urbana)	Accessibility to library materials has worsened with journal cancellation; staff helpful; online catalog is very user-unfriendly and doesn't permit browsing
Chicago	Proximity to users and helpfulness and knowledge of staff is excellent; furnishings, space, and physical environment (heat, humidity, etc.) is fair
Minnesota	Location - its a departmental library in the same bldg as the Math Dept.; access - available 24 hours per day
Michigan	(1) Adequacy of square footage (2) Amenities such as carpeting and ac (3) Degree of quietness outside the library (as well as inside, of course)

Indiana	Space, heating. Undergrads get in the way of faculty trying to read current journals
Ohio State	Lack of space
U. Washington	Quantity & quality of space; quality of staff; accessibility, ie., closeness to offices, after hours access, ease of use; library tools, ie., online catalog, MathSci Online & Disc; xerox; quietness; lighting; furniture; reader space; storage
Berkeley	
Stanford	Heat in summer, no ventilation. Old furniture.
San Diego	Modern equipment; friendly, helpful librarians; quiet room; good seating; easy access to literature
Caltech	Quiet, very long hours, small student body and faculty, librarians helpful, shelving fairly good, one classification scheme
UCLA-EMS	Lack of study space, poor layout of public services area
UCLA-reading room	Quiet, extensive collection in higher mathematics
Utah	Quiet, well-lighted area. Easy access to books & journals
Rice	Temperature & physical comfort, such as comfortable chairs & good lighting; photocopying facilities
Cornell	Over crowding, inadequate climate control, marginal lighting, building code problems
Northwestern	Positive factors: helpful staff, library & remote storage in math bldg: all volumes immediately accessible, key access for math faculty & grads negative factors: through traffic from graduate student offices, missing books (poor security)
Wisconsin	Crowding is starting to be a problem
Yale	Math Library is located essentially in 3 rooms on top floor of 1 of 2 bldgs connected by bridge. Traffic between bldgs is heavy, thus, it can be noisy at times

## Group II

Rensselaer (main)	Space, temperature, noise, seating, small assigned rooms
Syracuse	
Pittsburgh	It is reasonably quiet and people in the library respect each others wishes to work
VPI	
N. C. State	Main math collection is in central library and not a part of daily life. Library is token collection.
Duke	Quality and completeness of the collection. Convenience of location. Ease of access. Helpfulness of staff. User work space. Noise. (Note: 2 of 6 respondents misunderstood question)
Florida State	New facility (1988)
Kansas	Adequate space for materials and users. Pleasant atmosphere; quiet
Iowa	Inadequate study space for faculty and student usage
Michigan State	If question refers to physical environment, factors would be

	space, noise level, furnishings, architecture, lighting.
Wayne State	
Notre Dame	Cooperation between all the mathematicians and the librarian and library staff
Kentucky	Overcrowded and located in the basement of 18 story bldg (noise & dust float down)
Vanderbilt	
Florida (Gainesville)	Quality and depth of collection, services available and the physical plant
Oregon	Lack of space, a.c., ventilation
Southern Cal	
Colorado (Boulder)	Available seating, quiet, windows, temperature control
Oklahoma	Good working collection in the areas of interest to the patrons. Good access to other sources of materials. Cooperation between library staff & mathematicians.
Louisiana State	No separate display of newly arrived math journals; new journals & bound journals shelved on different floors
Tulane	Accessibility, ease in finding materials
Cal-Riverside	Too small: no room for expansion, tends to be closed during periods when faculty have time to use it
Rochester	
Group III	
Adelphi	Crowded conditions, limited access to periodicals, limited collection
Bryn Mawr	Quiet; availability of material; accessibility of research assistance
George Washington	Space, lighting, quietness, book stacks maintained in good order
Maryland (Baltimore)	Space
South Carolina	
Clemson	Poor heating and cooling system
Emory	Quiet, help available, materials accessible
Kansas State	Pluses: convenient/accessible, well-organized, climate-controlled, quiet minuses: budget inadequate to expectations, space (both for books & persons) inadequate, part of collection located elsewhere
Missouri (Rolla)	Display of current journals is atrocious
Missouri (Columbia)	Insufficient space for books and reader stations
Northern Illinois	Undergraduates use the library as a study hall. Carrels are available for faculty; special rooms for graduate students
MONTCH097	Convenience of access, limited holdings
Marquette	Some holdings in mathematical logic located in another library
Wisconsin (Milwaukee)	Quiet area to work in; isolated from traffic

Indiana-Purdue (Ind.)	Noise, lack of quiet study space
Cincinnati	Lighting, layout, space, noise
Kent State	Restricted usage (limited to faculty, visiting faculty, and graduate students); convenient proximity to offices
Memphis State	
Florida Atlantic	Breadth of collection
Alaska	Incomplete journal collection; layout of collections not optimal; display of current journals could be improved, staff at interlibrary loan not attentive
Idaho State	Restricted budget leads to restricted number of journals
Wyoming	
North Texas	Access to the math collection, lighting, furniture
Arkansas	Library staff needs more competence
Texas Tech	Accessibility, availability of study areas, physical conditions (lighting, noise, space) availability of copier, bound books and journals in same area
Western Michigan	Too crowded and noisy, no private study carrels
Texas (Arlington)	Crowded reading areas, no spaces specifically assigned to mathematics research
S. Illinois (Carbondale)	
Arizona State	
Cal-Irvine	Lack of adequate seating, cramped quarters, poor lighting, water leaks from lab above
St. Louis U.	Quietness and availability of adequate seating
Alabama (Birmingham)	While space and seating are certainly adequate, funding for monographs and journals varies with each fiscal year. Also, current issues of journals are not displayed separately from older bound volumes.
Hawaii	We have not been able to purchase new journals in the field for the last 5 years. Budget for books is too low.
American U.	4 responses: 1 fair, 2 good, 1 excellent light, comfortable seating, heating, a.c., table space readily available, books reshelfed promptly, copier in working order, polite, helpful service, quiet/relative quiet, resources, areas to work poor environment for faculty research, crowded and noisy conditions, unprofessional attitude of some employees (some perform their duties listening to music over headphones)
Texas (Arlington)	
Wichita St.	
Group VI	
McMaster	
British Columbia	
McGill	Lots of light and space for browsing, consultation. Undergraduate study spaces are isolated

Toronto  
Alberta  
Calgary  
York

from research areas (journals)

Lighting is fair, no open windows for air circulation, dust collects  
Space, light, heat, noise  
Shortage of study space

## QUESTION 6. EXPENDITURES AND INCOME SOURCES

6a. Itemize total expenditures for collection development (mathematics materials) in the Mathematics Library for the fiscal year 1989-90.

- (1) Serials
- (2) Electronic products if not included above
- (3) Other items (monographs, etc.)
- (4) Approval orders for other items, if not included above
- (5) Electronic products, if not included above

Notes: Figures are in US dollars, except for Group VI, which is in Canadian dollars. NR means no response. An asterisk \* means that there is a note in Appendix B.

	Group I				
	(1)	(2)	(3)	(4)	(5)
Rutgers	190,000	NR	35,000	NR	NR
*U Cal-Berkely	170,000	NR	33,000	NR	NR
Stanford	131,000	NR	35,000	NR	NR
Brown	128,717	NR	13,600	42,579	184,896
*Penn State	126,000	0	31,000	26,000	0
U NC-Chapel Hill	117,807	1,965	8,484	NR	NR
U San Diego	107,740	NR	19,240	NR	NR
Rice U	105,398	5,350	52,238	NR	NR
U Washington	105,332	1,820	16,196	NR	NR
U Michigan	104,800	NR	39,961	NR	NR
U Illinois-Urbana	92,922	1,685	9,858	17,110	NR
U Chicago	91,951	1,685	11,025	0	0
UCLA (EMS Library)	90,000	NR	30,000	NR	NR
Washington U	90,000	NR	15,000	NR	NR
U Virginia	85,920	4,549	967	2,545	NR
Cornell U	84,000	NR	33,000	NR	NR
U Minnesota	82,900	1,685	20,000	NR	NR
Princeton	80,185	NR	32,122	NR	NR
Johns Hopkins	82,000	NR	46,000	NR	NR
Indiana U	78,259	NR	24,915	NR	NR



CalTech	76,605	NR	3,160	NR	NR
U Wisconsin-Madison	75,973	NR	34,106	NR	NR
Harvard (Cabot Lib)	73,434	NR	14,604	NR	NR
Yale U	61,544	NR	7,144	NR	NR
UCLA (Grad Read Rm)	50,000	NR	10,000	NR	NR
U Maryland	50,000	1,820	9,000	35,700	NR
Harvard (Birkhoff Lib)	25,245	1,820	23,489	NR	NR
Ohio State U	19,086	NR	19,036	NR	NR
U Utah	NR	NR	23,100	NR	NR
Northwestern U	NR	NR	14,400	NR	NR

#### Group II

	(1)	(2)	(3)	(4)	(5)
U Iowa	133,598	NR	31,141	NR	NR
Michigan State U	111,861	NR	5,964	7,202	NR
Duke	107,159	0	14,525	3,663	0
U Kansas	102,283	NR	6,685	NR	NR
Syracuse	101,000	2,100	16,000	NR	NR
U Florida	100,586	2,500	11,548	6,633	NR
Tulane U	100,000	NR	15,000	NR	NR
Wayne State U	99,962	1,685	15,246	15,208	NR
U Rochester	95,984	1,700	NR	6,600	NR
Florida State U	95,354	NR	44,390	NR	NR
U Oregon	95,200	NR	3,000	NR	NR
VPI	86,523	NR	14,450	NR	NR
Vanderbilt U	82,848	1,685	18,585	NR	NR
U Kentucky	78,442	NR	20,163	NR	NR
Rensselaer (Main Lib)	70,000	NR	5,900	NR	NR
U Oklahoma	67,000	NR	3,300	NR	NR
U Colorado-Boulder	65,164	1,700	12,400	NR	NR
U Pittsburgh	64,572	NR	11,535	NR	NR
U Notre Dame	62,000	2,000	43,000	NR	NR
Louisiana State U	50,000	NR	NR	NR	NR
*Iowa State U (Read Rm)	5,000	NR	NR	NR	NR
*U Cal-Riverside	1,686	0	NR	NR	0
NC State U	0	0	2,000	NR	NR
U Southern Cal	NR	NR	NR	17,000	NR

#### Group III

	(1)	(2)	(3)	(4)	(5)
Arizona State U	135,400	NR	1,800	10,400	NR
U Cal-Irvine	108,200	NR	48,000	NR	NR
U Missouri-Columbia	104,074	0	12,981	13,125	0
Florida Atlantic	98,304	1,820	11,543	38,417	NR
Southern Illinois U	97,000	NR	NR	NR	NR
U No Texas	89,622	NR	8,245	NR	NR

U Cincinnati	84,000	NR	NR	23,000	NR
Memphis State U	83,982	NR	9,519	NR	NR
Northern Illinois U	78,750	NR	NR	12,300	NR
Emory U	77,813	NR	8,500	22,560	NR
U Texas-Arlington	73,069	NR	13,276	NR	NR
U Arkansas	70,000	NR	NR	5,500	NR
Clemson U	69,322	NR	26,702	NR	NR
U So Carolina	68,426	NR	9,678	NR	NR
Western Michigan U	64,658	NR	6,685	NR	NR
Marquette U	58,055	NR	26,746	NR	NR
U Maryland-Baltimore	57,395	NR	7,100	NR	NR
*George Washington U	55,062	0	4,176	6,330	1,266
Kent State U	55,000	NR	12,500	NR	NR
U Wyoming	54,000	NR	6,700	9,600	NR
Kansas State U	52,100	0	6,700	13,650	0
*U Wisconsin-Milwaukee	51,924	NR	72,200	2,732	NR
U Alabama-Birmingham	49,025	NR	1,106	NR	NR
Wichita State U	44,825	NR	26,195	NR	NR
Adelphi	42,000	NR	4,500	NR	NR
Texas Tech U	41,142	NR	2,903	5,035	NR
U Hawaii-Manoa	40,000	NR	NR	7,000	NR
U Missouri-Rolla	30,000	NR	10,000	8,000	NR
Bryn Mawr	22,498	NR	4,067	NR	NR
U Alaska-Fairbanks	20,250	NR	11,400	NR	NR
American U	16,700	NR	4,327	2,915	NR
Idaho State U	0	NR	5,000	NR	NR
St Louis U	NR	NR	6,877	NR	NR
Indiana U-Purdue U	NR	3,500	1,000	NR	NR

# Group VI

	(1)	(2)	(3)	(4)	(5)
U Alberta	117,522	NR	15,060	NR	NR
U British Columbia	108,945	NR	40,400	NR	NR
York U	106,435	NR	22,012	NR	NR
Queen's U	105,000	NR	17,000	8,000	16,000
McGill	100,000	NR	10,000	NR	NR
U Calgary	83,100	NR	3,580	NR	NR
U Windsor	50,206	NR	3,272	NR	NR
U Manitoba	33,000	NR	4,600	NR	NR
*U Toronto	NR	0	10,000	NR	NR
McMaster U	NR	NR	NR	NR	NR

Comments to questions 6b-d:

6b. What assistance does the mathematics department provide?

6c. If there is a journal exchange program, please describe it.

6d. What income is received from gifts, endowment funds, and other sources? Identify and estimate.

Group I

Harvard-Birkhoff:

Harvard-Cabot:

Brown

- d. \$1600 endowment, remainder undistributed
- b. None
- c. Exchange program with State Lenin Library for math journals and books for which we supply journal subscriptions
- d. Total: \$4,615 for 1989/90

Princeton

- b. None
- c. Exchange mostly foreign journals for Annals of Mathematics which we purchase at reduced rate

Rutgers

- d. \$1,000
- b. \$2,000
- c. None
- d. None

Penn State

- b. \$1,000 Other forms: own & maintain copiers
- c. Mostly international serials in exchange for AMS, our university press, or department serials
- d. \$3,200, from library endowments - all spent on library materials

Maryland

- b. None
- c. No significant exchange programs presently exist
- d. None

Johns Hopkins

- b. None
- c. Various exchanges
- d. Small

Virginia

- b. None
- Other forms: Journals from institutional memberships (AMS, MAA, ASA). Office supplies. Wiring in Math for Ether Net.
- c. None
- d. None

North Carolina

- b. \$2,500 Other forms: Student help: \$1,000/yr. Math Dept. supplies all office equipment, supplies, furniture
- c. Small exchange program for Slavic language and several East Asian titles
- d. Gifts: \$200/year

Wash. U. (St. Louis)

- b. None Other forms: University computing facilities account
- c. None
- d. None

Illinois (Urbana)

- b. \$4,815 Other forms: Math Dept. supplies general office

- supplies (\$300); student wages (\$100); computers to access online catalog (\$4,000)
- Chicago
- c. 198 exchanges subsidized by ILLINOIS JOURNAL OF MATHEMATICS (valued at \$14,000)
  - d. \$50,000 bequest yields annual income; \$1,000 annual gift
  - b. \$3,000 (not an ongoing commitment - this is special for retrospective purchasing)
- Other: Gifts of sample copies of books, selected lecture note series, surplus furniture and shelving
- Minnesota
- b. Institutional AMS membership so reduced rates
  - Other: Provides some duplicating services
  - c. Very limited scale in order to obtain titles not otherwise available
  - d. None
- Michigan
- b. \$8,700 (see 6c below)
  - c. 240 serial exchanges with MICHIGAN MATHEMATICAL JOURNAL. Math Dept. sells exchange copies below list price, equivalent to a subsidy of \$4,200 (this amount is incorporated into total in 6b above).
  - d. Difficult to put a precise dollar amount, but (1) many books and journals rec'd from MATHEMATICAL REVIEWS, (2) living and deceased faculty members contributions. \$10,000/yr estimated.
- Indiana
- b. \$350, includes IMS and MAA journals
  - d. None
- Ohio State
- b. Other: Contribution toward salary of 1 staff member
  - d. Endowment income is being reinvested now
- U. Washington
- b. Other: 5 years ago, Math Dept purchased IBM PC & printer for library; Receive occasional student help to retrieve storage from Math Dept
  - c. PACIFIC JOURNAL OF MATHEMATICS exchange: Math Dept pays for 12 subscriptions/yr which are used to exchange for foreign math journals
  - d. \$500/year gift money
- Berkeley
- c. Main Library arranges exchanges of many East European and Latin American journals - probably 125+
  - d. Few hundred dollars/year
- Stanford
- b. \$1,550
  - c. 30 titles rec'd on exchange for PACIFIC JOURNAL OF MATHEMATICS
  - b-d. None
- San Diego Caltech
- c. 65 titles rec'd on exchange for PACIFIC JOURNAL OF MATHEMATICS; 4 other titles rec'd on another exchange
- UCLA-EMS
- UCLA-reading room 1
- b. \$60,000 Other: staffing, supplies, copying
  - c. None

- Utah
  - d. One gift of \$10,000 for monographs
  - b. Other: Pays for student help to keep library open additional 10 hours/week
- Rice
  - d. Approximately \$2500 in endowed fund; also, separate reference funds for items such as MATHEMATICAL REVIEWS which is separate from above
- Cornell
  - b. \$5,000 Other: Dept raised \$50,000 toward a book endowment for the library and contributes 18 journal subscriptions, mostly from institutional membership
  - c. Math Library participates in university library exchange program
  - d. \$5000 from NY State Coop. Coll. Dev. Funds  
\$2000 from existing book endowments  
\$5000 from Math Dept as in 6b above  
less than \$2000 from small gifts, special projects, etc
- Northwestern
  - b. \$2000 (est.)
  - d. Endowments funds for monographs: about \$18,000/yr available
- Wisconsin
  - b. \$2700+ Other: Math Dept owns copier. Funded 1/2 of cost of 3M security system as personal contribution of faculty members
  - c. Publication of Wisconsin Academy of Science & Letters exchanged for journals & monographs from other institutions
- Yale
  - b. \$1000 Other: Pays for postage for material sent on exchange, library has free access to copier, receives some stationery items
  - c. Receives 6 journals on exchange from Polish Academy of Sciences, sending them 2 journals donated by faculty members
  - d. Faculty of Math Dept donate 5 journal titles worth \$4300 in 1990 - these are used in 6c. above

## Group II

- Rensselaer (main)
  - d. None specifically for mathematics
- Syracuse
  - b. None Other: copy machine
- Pittsburgh
  - b. Other: Donation of some SIAM journals, IMA publications and institutional membership in AMS
  - c. Limited exchange with publishers of 'Eastern Block' math journals
  - d. No regular endowment funds.
- VPI
  - b. None
  - c. None
  - d. None
- N. C. State
  - b. None

- Duke
- d. \$2,000 from endowment funds
  - b. \$1,325 from department paying AMS membership  
Other: Occasional student or secretarial help, occasional travel support, occasional financial support for expensive titles
  - c. DUKE MATHEMATICAL JOURNAL is used for serial exchanges; library buys it from Univ Press at reduced rate. Number of exchanges has decreased
  - d. No specific endowments
- Florida State
- b. None
  - c. Some titles with foreign academic institutions
  - d. None
- Kansas
- b. None
  - d. None
- Iowa
- b. None
  - c. None
  - d. None
- Michigan State
- b. \$215 (est.) Other: Librarian's salary, copy machine, computers, telephones
  - c. \$4,500 (in 1989/90) is provided by University Libraries for exchange program of REAL ANALYSIS EXCHANGE (amount of annual contribution is determined by adding subscription prices for journals rec'd by Math Library as part of this program)
  - d. \$50 in used books
- Wayne State
- b. None
  - c. None
  - d. Negligible
- Notre Dame
- b. \$4,000 Other: 2 IBM PC to search MathSci
  - c. Main library handles it, paying for issues of our publication which is exchanged
  - d. \$4,000 through endowments and gifts
- Kentucky
- b. None
  - d. \$5,950 endowment income per year
- Vanderbilt
- b. None
  - c. None
  - d. Unknown
- Florida (Gainesville)
- b. None
  - c. University exchange program brings in Polish and Russian math journals
  - d. None
- Oregon
- b-d. None
- Southern Cal
- c. Yes, PACIFIC JOURNAL OF MATHEMATICS
- Colorado (Boulder)
- b. \$2,600 in paid institutional memberships  
Other: \$1,000 toward purchase of CD-ROM reader and a printer. We receive journals from AMS and Rocky

	Mountain Mathematics Consortium with payment of institutional membership.
	c. None (my interpretation of what was said)
	d. 40 books/year as personal gifts this?
Oklahoma	b. Other: copier usage for new books list
Louisiana State	b. Institutional memberships in AMS & MAA
Tulane	b. \$6,000
Cal-Riverside	b. Other: Math Dept staff supply 20% of staffing in library
	d. Small cash contributions go into a onetime endowment and small math book collection over period of 25 years.
Rochester	c. Modest exchange program carried out in cooperation with Rochester Academy of Science of the 22 titles rec'd, very few considered important by the faculty
	d. Varies. When funds allocated for math books are used up, endowed funds are available for use
Group III	
Adelphi	b. \$10,000 approx.
	d. Insignificant
Bryn Mawr	b. None
George Washington	b. None
	Other: Pays for institutional membership which allows discounted AMS journals. Provides advice in selection of books and journals
	c. None
	d. None specifically for mathematics
Maryland (Baltimore)	b. None
South Carolina	b. \$478 Other: 3 graduate assistants
	c. None
	d. None
Clemson	b. None
	c. None
	d. None
Emory	b. None
	c. None
	d. None
Kansas State	b. \$1,148
	Other: AMS membership allows library to purchase journals at reduced rate; third to half student assistant budget; minimal use of copier and supplies
	c. 4 math exchange titles rec'd by Math/Physics
	d. None
Missouri (Rolla)	b. None
Missouri (Columbia)	b. \$1500 Other: Institutional membership to SIAM
	c. None

Northern Illinois	d. One time gift of \$1300
Marquette	b. None
	c. None
	d. None
Wisconsin (Milwaukee)	b. None
Indiana-Purdue (Ind.)	
Cincinnati	b. None Other: Occasional books and journal donations
	c. None
Kent State	b. None
Memphis State	c. None
FLATCH	b. None
	c. None
	d. None
Alaska	b. Other: Four journal titles rec'd from faculty member
	c. Modest exchange program over a variety of disciplines, but nothing significant for math
Idaho State	
Wyoming	c. 30-40 journals on exchange
North Texas	b. Other: We used to pay for all CSCI, Math Ed, & some physics journals but that is now separate. Many of these of interest to researchers in mathematics.
	d. Very little
Arkansas	
Texas Tech	c. 23 titles are rec'd on exchange for Texas Tech Math series
	d. Receive 18 gift math journal subscriptions (value unknown)
Western Michigan	
Texas (Arlington)	
S. Illinois (Carbondale)	b. \$5,000
Arizona State	
Cal-Irvine	
St. Louis U.	
Alabama (Birmingham)	c. Network of Alabama Academic Libraries has a journal exchange program in which UAB participates
Hawaii	b. \$100
	c. PACIFIC JOURNAL OF MATHEMATICS exchange
American U.	
Texas (Arlington)	c. UTA Math Dept Technical Report is exchanged for math and other publications
Wichita St.	d. \$45,000 received as endowment funds, Board of Trustees Funds and misc. gifts. Approximately 1/10th of that spent on materials supporting the mathematics program



## Group VI

McMaster

- b. Other: Math Dept library representative selects material for purchase

British Columbia

McGill

- b. \$6000-10000 for monographs and 3 subscriptions  
Other: Dept contributes around 50% of student help and subsidizes photocopying by mathematics faculty
- c. 25 journal titles received at considerable savings on exchange for CANADIAN JOURNAL OF STATISTICS. arranged by former editor

Toronto

- d. Negligible: \$200/year as part of alumni giving
- b. \$5500 Other: PC, copier, occasional student help
- c. 83 journals worldwide recd on exchange for CANADIAN JOURNAL OF MATHEMATICS.

Alberta

- d. \$8,500 from endowment funds
- b. \$3870CAN
- b. 18 titles recd as result of membership in Rocky Mtn Math Consortium
- c. Number of others recd in exchange for CANADIAN JOURNAL OF MATHEMATICS and CANADIAN MATHEMATICS BULLETIN.

Calgary

York

Queen's:

- d. gifts of \$10,000
- c. Papers and journals are sent to us in exchange for Queen's's PAPERS IN PURE AND APPLIED MATHEMATICS

Windsor:

Manitoba:

- c. We exchange two journals only and receive 6 titles in return

## QUESTION 7. THE COLLECTION IN THE MATHEMATICS LIBRARY

### 7a. Number of currently received mathematics journal titles:

	I-1	I-2	II-1	II-2	III-1	III-2	VI
0-49				1	3		
50-99		2		1	9	1	
100-149	1	1	1	1	10	1	2
150-199	1		4		8		2
200-249	2		4		8		2
250-299	7		5		7		
300-349	2		4		5		4
350-399	4		5		1		
400-449	1		2				1
450-499	3		2				1
500-549	8				2		
550-599	1						
600-649							
650-699							
700-749							
750-799	1		1				

### 7b. Total number of mathematics volumes (excluding materials in remote storage or in other libraries on campus):

	I-1	I-2	II-1	II-2	III-1	III-2	VI
0-4K				2		2	
5-9K			1	1	7		
10-14K					6		1
15-19K	2	1	4		7		1
20-24K	3	1	2		3		
25-29K	2		5		7		1
30-33K	7		1		8		2
35-39K	5		2				
40-44K	2		2		1		
45-49K	1						1
50-54K	1		1		1		
55-59K	1						
60-64K	1						
65-69K					1		
70-74K							
75-80K	1						

**Breakdown of previous figure: Number of bound journal volumes:**

	I-1	I-2	II-1	II-2	III-1	III-2	VI
0-4K				1	3	2	
5-9K	5	1	4	1	11		1
10-14K	4	1	7		10		2
15-19K	8		2		3		3
20-24K	5				1		
25-29K	1						
30-34K	1						
35-39K							
40-44K							
45-50K					1		

**Breakdown of previous figure: Number of everything else:**

	I-1	I-2	II-1	II-2	III-1	III-2	VI
0-4K	1		1	2	5	2	1
5-9K	3	1	3		5		2
10-14K	3	1	1		5		1
15-19K	7		4		4		
20-24K	7		2		3		1
25-29K	2		1		3		1
30-34K	2						
35-39K					1		
40-44K							

**Question 7c. Describe microfiche and microfilm holdings.**

**GROUP I**

Harvard-Birkhoff:	None
Harvard-Cabot:	Minimal
Brown:	In process, a math preservation filming project of 3,000 monographs dated 1850-1910. Already own over 1,000 reels of microfilm on various monographs, foreign dissertations and early journal volumes.
Princeton:	Very few
Rutgers:	Minimal
Penn State:	Mostly artificial intelligence technical report collections.
Maryland:	Over 1 million technical reports are on fiche, but most are NASA, DOE, etc. with little relevance to math. Some high-use journals are on microfilm to ensure a complete archival copy.
Johns Hopkins:	Very little
Virginia:	None

North Carolina:	Practically none
Wash. U. (St. Louis):	None
Illinois (Urbana):	All monograph fiche and film housed in main library stacks; serials in math = 79 film and 725 microfiche.
Chicago:	About 30 reels of microfilm
Minnesota:	Very few
Michigan:	Approximately 1,000 reels of microfilm. Several hundred sheets of microfiche, mostly inserts from books out of print.
Indiana:	Some early years of AMS journals
Ohio State:	7 reels (4 dissertations, 1 journal). Microfiche: U.S. Army Univ. Wisconsin Mathematics Research Center, Tech. Reports. Approximately 1000 fiche.
U. Washington:	Very limited - a few op (?) monographs
Berkeley:	Small and uncataloged
Stanford:	Few in mathematics
San Diego:	
Caltech:	None
UCLA-EMS:	
UCLA-reading room:	
Utah:	
Rice:	Replacement issues
Cornell:	Selected periodical titles; selected volumes (approx. 250 tot.)
Northwestern:	None
Wisconsin:	1,217 in microfiche, microcard and microfilms
Yale:	

## GROUP II

Rensselaer (main):	Large gov't reports collection - small gov't doc's collection. Very little relates to mathematics - just a few old journal runs.
Syracuse:	4 journal titles in microfilm microfiche: U.S. Army Univ. Wisc. Math. Research Center Reports
Pittsburgh:	83 reels of microfilm (generally early journal volumes). 868 microfiche sheets
VPI:	
N. C. State:	None
Duke:	Microfilm consists of some out of print foreign journal issues. Microfiche are primarily U.S. Government publications.
Florida State:	Periodical backfiles purchased on microfilm. Heaviest used titles duplicated on microfilm.
Kansas:	None
Iowa:	Minimal, scattered holdings of technical reports.
Michigan State:	Microfilm - 160. Microfiche - 245.
Wayne State:	Small number of government mathematical documents and reports are received on microfiche. All

journal holdings are retained in paper copy.

Notre Dame: None

Kentucky: ACM Algorithms

Vanderbilt: We have some back issues of periodicals on microfilm

Florida (Gainesville): These are included in the volume figures if they are classified.

Oregon: None

Southern Cal:

Colorado (Boulder): Very few. Only a few German academies and single reels to complete runs otherwise in hard copy.

Oklahoma: The only microforms in mathematics are back issues of journals to complete holdings. We do not collect in microform at this time.

Louisiana State:

Tulane: None

Cal-Riverside: None

Iowa St. (reading room):

Rochester: Virtually none

### GROUP III

Adelphi:

Bryn Mawr: None

George Washington: Back issues of a very few journals in mathematics are on microfiche.

Maryland (Baltimore):

South Carolina: None

Clemson:

Emory: Very few items for mathematics and computer science in microfilm.

Kansas State: None

Missouri (Rolla):

Missouri (Columbia): Microfiche holdings consist of Conf. Proceedings. Microfilm holdings consist of back issues of journals.

Northern Illinois:

Marquette:

Wisconsin (Milwaukee): Some high priced periodicals are purchased in this format. I don't have the number, but most are East European journals.

Indiana-Purdue (Ind.):

Cincinnati: IEE Security conference and miscellaneous other items.

Kent State:

Memphis State: We have about 6 journals on microfilm (because of missing issues from some journals).

Florida Atlantic:

Alaska: Backfiles of 1/2 dozen journals; e.g. Amer. Journal of Math and Annals of Math, are held in microfilm.

Idaho State:

Wyoming:	elected backruns of journals in film or fiche
North Texas:	
Arkansas:	Printed books 15,500 (titles) Microform units 3900 (titles) Current periodicals (350)
Texas Tech:	Negligible
Western Michigan:	Microfiche - Inverse Problems, Nonlinearity Microfilm - Jahrbuch über die Fortschritte der Mathematik
Southern Illinois:	Miscellaneous scattered holdings in series such as the Landmarks of Science.
Arizona State:	Holdings on microformat are interfiled and housed separately. Unable to comment on specific titles in mathematics.
Cal-Irvine:	None
St. Louis U.:	Approximately 4 selected volumes of journals held on microfilm. No other mathematical materials in microform.
Alabama (Birmingham):	
Hawaii:	None
American U.:	
Texas (Arlington):	None are located in the mathematics library, only in central library.
Wichita St.:	Have some back issues on Microcard

#### GROUP VI

McMaster:  
British Columbia:  
McGill:  
Toronto:  
Alberta:  
Calgary:  
York:  
Queen's:  
Windsor:  
Manitoba:

None  
None

## QUESTION 8. CLIENTELE SERVED

**8b. Does the library maintain reserve collections for mathematics graduate students, undergraduate mathematics majors, for lower division undergraduates?**

	math grads	math majors	lower division
Group I	91.4%	71.4%	57.1%
Group II	79.4%	64.7%	64.7%
Group III	71.9%	66.7%	59.6%
Group VI	66.7	66.7	58.3%

Note: Percentages are based on the total number of questionnaires received in each group. Thus a "no" could mean either they do not maintain reserve materials or they chose not to respond (unable to distinguish).

**8c. What are the most frequently heard requests, comments, compliments or complaints by mathematics faculty and mathematics graduate students?**

### GROUP I

Harvard-Birkhoff:	Complaint: missing books (stolen)
Harvard-Cabot:	Request: Would like 24 hour access.
Brown:	Main complaint: Library not in department. Comment: "Extensive current and historical research collection.
Princeton:	Complaint: Missing books. Compliment: Completeness of collection, especially older materials.
Rutgers:	Complaint: Lack of a particular title. Compliment: Supplying title promptly.
Penn State:	Complaint: Too much has been stored.
Maryland:	Compliment: Excellent collection, pleasant environment.
Johns Hopkins:	
Virginia:	Complaints: More space needed. Copy machine often broken (machine gets massive use by math dept). When it goes down it is not available for the library. Compliments: Users prefer math library to science/engineering because it is easier to use (materials are together, get better service in a smaller environment). Users from outside the math dept and graduate students especially appreciate the service provided. Comment: The graduate students are quickest to pick up on MathSci CD ROM.
North Carolina:	Collection often praised. Space constraints criticized.
Wash. U. (St. Louis):	Complaints: The mathematics collection is divided between Math Lib. and the main library; ii. Lack of space.
Illinois (Urbana):	Complaints: Library staff cannot always tell you (due to privacy laws) you who has book checked out; library

needs more money; takes too long from time book is ordered to time it's on new book shelf.

Chicago: Compliments: library staff make great efforts to satisfy requests; Compliments: proximity of collection; knowledgeable & helpful staff. Complaints: loss of older monographs from collection; space crunch.

Minnesota:

Michigan: Compliment: Our collection is excellent. Complaint: The need to store a large fraction of it is "bad, deplorable, outrageous..."

Indiana: "Is it checked out; can you tell me who has it?"

Ohio State: Complaints: Lack of space, no seating, no new journal subscriptions. Lack of money.

U. Washington: Complaints: about stored items, storage, not enough copies of high use items, too crowded, too few user spaces, want MathSci and citation index online locally. Compliments: helpful staff, easy to use, good depth and breadth of collection, after hours access.

Berkeley: Requests: (1) automatic circulation, (2) make it possible to find out who has borrowed an item. Compliments: (1) scope of collection, (2) willingness & ability of staff to help find materials.

Stanford: Comment: "This is a good math library."

San Diego: Complaints: The library is not located in the same building as the math department. Needs more monographs and journals (particularly Russian-language).

Caltech: Complaints: Books are missing or checked out from the library; collection lacks depth and breadth; some journals have been discontinued; some older journals have been discarded; some journals have been removed from the main collection for storage in another location. Compliment: However, the studying environment is excellent.

UCLA-EMS: Complaints: (1) They would like the EMS Library to subsidize their departmental library; (2) complaints about stored materials; (3) Insufficient current acquisitions.

UCLA-reading room: Complaints: Copier isn't working. Compliments: Well organized collection; room pleasant.

Utah: Complaints: Hours not long enough for serious work, especially in summer. Not all of the important journals are carried. Keys for faculty & grad students. Probability and statistics books in main library. Need online database.

Rice: Complaints: Not having a specific book; book is missing or lost; faculty sometimes do not agree with LC classification; requests for circulation of bound journals for extended time period.

Cornell: Request: "Can you tell me who has the book?" "Do I really have to pay this fine?"



"Can you help me find this journal (journal article)?  
 Northwestern: Complaints: Too many books missing, journal collection not extensive enough, dislike delay of using interlibrary loan.  
 Compliment: librarian helpful in locating materials.  
 Wisconsin: Complaints: cancelled journal titles. Lack of Russian journals (orig./trans.). Accessibility to CD-ROMS, etc. Lack of money to get new journals.  
 Yale: Request: Compliments: Easy to use, material readily available, informality of the library environment.

## GROUP II

Rensselaer (main): Complaints: The collection is not large enough - for both books and journals.  
 Compliment: the reference staff is very helpful.  
 Syracuse: Cataloging slowness. Slowness of Acquisitions in getting new journals and some books.  
 Pittsburgh: Complaints are "We don't have this new journal I want" or why is this journal in library X instead of our library. (We try not to duplicate.)  
 VPI: Requests to add more journal titles.  
 N. C. State:  
 Duke: Compliments: helpfulness of staff; self-service circulation system; books are there when you want them. Complaints: "everything is always checked out." Important or popular books missing/lost/ stolen, borrowers can check out too many books for too long, journals should not leave the building and should circulate for short periods of time only, no easy access to electronic resources (M.R.), difficult to locate material, financial constraints causing cancellation of periodicals.  
 Florida State: Complaints: Item needed on loan to another patron.  
 Kansas: Complaints: 1. That the library is no longer in the same building as the department.  
 2. That the online catalog does not have boolean searching.  
 Iowa: Complaints: Faculty remark about undergraduates usage as study space; it impedes their work.  
 Michigan State: Compliments: This is an excellent library. The staff are always very helpful. Complaints: Slow interlibrary loans, slow recalls, slow arrival of new books, missing books, and not being able to afford new needed journals.  
 Wayne State: Complaints: 1. The library should be next to our offices.  
 2. The library is our laboratory [ and therefore should be funded better]. 3. It is not on the shelf [where is it?]  
 Notre Dame: They are generally happy about their library. We

have heard very good comments ("we love our library"). Recently they complained about approval plan, that the books we receive are marginal. We are working on that problem.

Kentucky: Complaints: Missing items because of no security system.

Vanderbilt: Complaints: We display currently received journals alphabetically - some faculty would like to have currently received journals on display for a week in a separate spot other than with current journals for the year. Bound volumes are by call number. Some find this confusing. Some faculty would like journals and monographs shelved together. Compliments about MathSci disk and about staff being helpful.

Florida (Gainesville): Complaints: Mathematics faculty would like to purchase more new mathematics serials. In the Science Library journals published before 1982 are stored on a separate floor in compact shelving. Mathematicians would prefer all journal vols. in one place.

Oregon: Lack of space

Southern Cal: Too little space.

Colorado (Boulder): Compliments: Very good collection of "older" journals and collected works of pre-1900 mathematicians. Complaints: Need more money to purchase new books and serials. Library is not in same building as Math Dept.

Oklahoma: Complaint: The inability to subscribe to new journals without dropping an equal amount is the main sore point. Compliment: The faculty and students generally view this as a good working collection.

Louisiana State: Complaints: 1) We need subscriptions to certain new journals (e.g. JOURNAL OF THE AMS!). 2) Discourteous treatment by library staff. 3) Need reading room for new journals IN department.

Tulane: Compliments: Excellent library - easy to find things - many books and journals can be found here and not at other libraries at other institutions.

Cal-Riverside: Complaint: More room needed.

Iowa St. (reading room): Complaint: Not having a bigger collection here (some journals, used by other departments we cannot have here, but must be left in the main library, e.g. logic)

Rochester: Complaint: The library is too large. The collection is split among too many locations.

### GROUP III

Adelphi:	
Bryn Mawr:	Complaint: Budget inadequate for research
George Washington:	Compliment: The collection is good. Complaints: Journals should be arranged by subject (they are alphabetical by title -- all disciplines together). Book stacks not kept in good order. Faculty should be able to keep books out for a longer period. Want to subscribe to more journals.
Maryland (Baltimore):	
South Carolina:	Compliments: Library is in same building as math faculty. Complaints: Lack of complete MATH REVIEWS in math library.
Clemson:	Complaint: More journals needed.
Emory:	Compliment: They like new arrangement of current journals.
Kansas State:	Complaints: want more titles to be acquired; current journal issues arrive too slowly; collection scattered. Compliments: well-organized, capable staff.
Missouri (Rolla):	
Missouri (Columbia):	Complaint: Lack of copy machine inhouse.
Northern Illinois:	Unbound journals are located in departmental reading room, but the rest of the collection is in Founders Library. The Mathematics faculty feels very strongly that it should be located in our building.
Marquette:	Compliments: 1. efficiency of online catalog, 2. efficiency of the interlibrary loan system, 3. competence of library personnel.
Wisconsin (Milwaukee):	Negative comments center on the location of the library. We (mathematicians) prefer a separate math library closer to math. dept. Also, there is difficulty in acquiring new journal titles due to budgetary constraints.
Indiana-Purdue (Ind.):	
Cincinnati:	Complaints: Missing items.
Kent State:	Complaints: Graduate students using library as "office space". Lack of security with respect to returning bound journals.
Memphis State:	Complaint: Better online system and more space.
Florida Atlantic:	Complaint: Interlibrary loan may be slow depending on peak periods during semesters.
Alaska:	Complaint: Inadequate journal collection.
Idaho State:	Complaint: Not enough periodicals/journals
Wyoming:	Complaint: There isn't enough funding for journals & equipment.
North Texas:	Complaint: We want all of our journals & books under one roof.
Arkansas:	Complaint: Gaps in collection.
Texas Tech:	Complaints: Insufficient journal holdings, inability to supply current awareness service.
Western Michigan:	Complaint: Insufficient number of journals.

Southern Illinois: requests for journals literature on Interlibrary Loan.  
 Arizona State: Complaint: Need to expand the journal collection.  
 Cal-Irvine: Complaint: We cancelled Zentralblatt, which some faculty feel we should have still.  
 St. Louis U.: Complaints: Current journals not arranged by call number. They are in alphabetical order and mixed with those of the sciences. Not enough journals.  
 Compliment: Very good monograph collection.  
 Alabama (Birmingham): Complaint: Recent issues of journals are placed with the bound volumes instead of being located separately.  
 Hawaii: Complaint that we do not have money to purchase new journal titles.  
 American U.: Library staff say that we hear little from them - occasional comments about the need for specific materials not included in our collection. We also have heard how helpful they find ALADIN (online catalog), particularly the dial-up capabilities.\*  
 Texas (Arlington): Complaint: Not enough journals; incomplete sets.  
 Wichita St.: Complaint: Not enough text books, not enough journals, series

#### GROUP VI

McMaster:  
 British Columbia:  
 McGill: Comment: Keep the library near the department! More journals, more space (only slight space shortage exists. Compliment: Comfortable, people oriented environment.  
 Toronto: Complaint: Not being able to subscribe to any new journal without cancelling a journal(s) of equal price.  
 Alberta: Compliment: Best Math Library west of great lakes in Canada; appreciate its location within the Math Dept; Comment: why don't we subscribe to more journals;  
 Calgary:  
 York: Complaints: Not enough books or journals, library should be closer to dept.  
 Queen's: Compliment: Good journal collection  
 Windsor:  
 Manitoba:

## QUESTION 10. IDEAL MODELS OF MATHEMATICS LIBRARIES

The questionnaire states: "These questions are attitudinal. Librarians may wish to consult experienced mathematics library users in answering them."

**10a. Identify what you think are among the best mathematics libraries in the world.**

The institutions and number of citations listed by respondents are as follows. Places receiving fewer than 5 citations are not listed.

United States: Princeton (36), Harvard (30), Berkeley (27), Illinois (27), Michigan (20), Brown (12), Courant (9), Stanford (8), Chicago (7), MIT (7), Institute for Advanced Study (7), Yale (6), Cornell (5), Wisconsin (5), Library of Congress (5)

European: Oberwolfach (10), Cambridge (9), Goettingen (7), Mittag-Leffler (5), Oxford (5)

**10b. What are the qualities that make these libraries the best?**

Harvard-Birkhoff:

Harvard-Cabot:

Collections. Retrospective conversion for online catalogs.

Brown Faculty rep felt Brown's collection was right near the top and did not feel the need to identify or comment on any others!

Princeton

Rutgers

Penn State

Maryland

Depth of collection.

Comprehensive collections, ample hours of service, competent and responsive service.

Johns Hopkins

Virginia

Completeness of collection (no. of journals, holdings that go back continuously to Volume 1, quiet reading area and scholarly atmosphere. What you need is there. Access for browsing. In the Mathematics Department. Spacious.

North Carolina

Wash. U. (St. Louis)

Illinois (Urbana)

Completeness of the collection with all other advantages secondary to primacy of collection.

Chicago

Proximity of library to users, depth of collection, ease of access to books and journals.

Minnesota

One for breadth of collection and number of duplicates; one for a historic collection; one for rare books

Michigan

1st, 2nd, 3rd third priorities: Comprehensiveness of the space to house the collection. 5th: Helpfulness and knowledge

INOICH474	of the staff. 6th: Furnishings, lighting, air conditioning
Ohio State	Completeness Completeness of collection; noncirculation of journals (they are always there); atmosphere - space and staff; depth of collection (historical).
U. Washington	Good collections - complete, easy access, good staff, online catalog, large collection, valuable rare texts included, large space, huge budget, knowledgeable collection development.
Berkeley	
Stanford	Good collections of core titles and foreign titles. High percentage of what is indexed in Math. Reviews.
San Diego	Completeness of collections; good location - usually in the same building as math department.
Caltech	Depth of collection; adequate space with the consequence that older journals are kept; keeping track of new publications; allocating enough resources to buy as much as needed.
UCLA-EMS	Comprehensiveness of journal and book collections.
UCLA-reading room	
Utah	A large up to date collection, covering all areas of mathematics. Carry all of the major journals. Have electronic database. Open 24 hours, 7 days per week.
Rice	Size of collection - both breadth and depth; number of journals; ability to browse stacks and online catalog efficiently; books in proper place; books arranged by subject, rather than series.
Cornell	A separate collection with a good librarian to build it. Institutional support from the Math. Dept. and the University Library. Strong current collecting intensity. Historic depth. Broad scope in terms of geography and language. A subject range that is open minded especially toward applications. Part of a strong library system to provide subject coverage at the periphery. Quality bibliographic control that is visible on the major utilities (ie RLIN or OCLC).
Northwestern	Breadth of collection (including especially journals with limited circulation). Immediate accessibility.
Wisconsin	Availability of Russian materials, larger journal collection and more funding. Brown University's collection of older material is excellent.
Yale	Comprehensive collections.
Group II	
Rensselaer (main)	Collection.
Syracuse	Quickly obtains new acquisitions and expedites cataloging. Present and retrospective holdings. Document delivery service

Pittsburgh	and cooperative efforts with other libraries. Number of volumes and accessibility. One needs to be able to take a journal out for 48/72 hours. You need to be able to browse through a collection.
VPI	
N. C. State	
Duke	Extensive collection of books and journals; organization; good security; pleasant environment.
Florida State	
Kansas	
Iowa	
Michigan State	Comprehensiveness of collection. Knowledgeability of staff. Open stacks.
Wayne State	Depth of collection.
Notre Dame	The best libraries have everything they need. They also provide recent information very quickly. Positive environment.
Kentucky	
Vanderbilt	Faculty seem to think that libraries that established strong collections 50 years ago had better collections than libraries trying to become good collections now. All faculty based their judgements on their ability to locate needed materials without having to use Interlibrary Loan. Staff at these libraries were mentioned as an asset.
Florida (Gainesville)	Collection, location, service (photocopiers, electronic databases) Library close to faculty offices.
Oregon	
Southern Cal	
Colorado (Boulder)	Size and comprehensiveness of collection. Knowledgeable library faculty/staff. Ease of accessibility of majority of collection. Environment conducive to study-research.
Oklahoma	
Louisiana State	Library is housed inside Math. Dept. COMPLETENESS of collection.
Tulane	Number of available publications, accessibility, stimulating setup
Cal-Riverside	Math journals, manuscripts, size and history of collection, physical proximity to department.
Iowa St. (reading room)	Generous acquisition policy, ready accessibility, no gaps in collections.
Rochester	
Group III	
Adelphi	
Bryn Mawr	Broad collection.
George Washington	Comprehensive collections -- more of the less common sources

	are available.
Maryland (Baltimore)	
South Carolina	Coverage of collection.
Clemson	
Emory	Extensive periodical holdings, strong monograph holdings.
Kansas State	Comprehensive collections, esp. complete journal runs. Modern facilities. Computerization.
Missouri (Rolla)	
Missouri (Columbia)	
Northern Illinois	Holdings. In the case of universities - its location in Mathematics Department.
Marquette	Some of the bigger universities can afford to acquire more journal titles; this of course makes their libraries superior.
Wisconsin (Milwaukee)	Size of collection and number of current subscriptions.
Indiana-Purdue (Ind.)	
Cincinnati	Breadth of collection of periodicals and monographs.
Kent State	They have everything that was printed and they are organized so that someone can find it for you.
Memphis State	
Florida Atlantic	Vast holdings. Complete holdings of journal titles. Institutions large enough to have a "mathematics librarian."
Alaska	Contain all major journals and most others in complete sets; contain proceedings of major meetings; all journals and monographs easily accessible; comfortable work space.
Idaho State	
Wyoming	Breadth and depth of collections; state of the art equipment.
North Texas	Comprehensive. Complete runs.
Arkansas	Qualified personnel and collection.
Texas Tech	
Western Michigan	Size and breadth of collection. In some libraries, accessibility is excellent. In others, older volumes are in storage area.
S. Illinois (Carbondale)	
Arizona State	Collections and access.
Cal-Irvine	Large collections, ease of use.
St. Louis U.	Accessibility to faculty (open many hours particularly weekends). Comprehensiveness of the collection.
Alabama (Birmingham)	Quality and quantity of materials available for use; quality of professional staff; ability and willingness of parent organization to provide adequate financial support for library programs.
Hawaii	
American U.	Faculty comments: A comprehensive research collection that supports faculty scholarship and offers international coverage of developments in a field. Such a library can also support a scholarly publication. Extensive holdings of journals and books. Accessibility of stacks. Quiet and scholarly atmosphere. Availability of duplicating facilities.



**Collections.**

**Texas (Arlington)  
Wichita St.**

**Group VI**

**McMaster  
British Columbia  
McGill  
Toronto**

**Comprehensiveness of collection, scholarly atmosphere.**

**1. Good to have math and physics together. 2. The library staff are very knowledgeable.**

**OTTW**

**Alberta**

**Calgary**

**York**

**Queen's:**

**Windsor:**

**Manitoba:**

**24 hr. access to books and journals for faculty and graduate students; abundance of material.**

## APPENDIX A

### Notes

1. Libraries identified as #2 (second mathematics libraries on one campus, or departmental reading rooms):

#### Group I

Harvard-Birkhoff (second library)

MIT (reading room)

UCLA (reading room)

#### Group II

Rensselaer (reading room)

North Carolina State (reading room)

U. New Mexico (reading room)

U. Arizona (reading room)

U. California Riverside (reading room)

Iowa State (reading room)

#### Group III

New Mexico State (reading room)

U. Idaho (reading room)

2. Changes in data:

Reclassify Berkeley as 3

Reclassify Harvard-Cabot as 5

Reclassify Rensselaer reading room as 2

Reclassify Adelphi as 5

Location of Mathematics Library in same building as the mathematics faculty: There are cases where it is a judgement call if the library is in the same building, since adjoining buildings may function as one. This occurs at UCLA-EMS and Indiana (both Group I). If adjoining buildings effectively function as one, we called them the same.

In Group II, U. Florida and the Rensselaer reading room said they have the full tapes for the MathSci database. Both are incorrect, and the responses were changed.

3. The only libraries listed in the institution-specific data are those that made their data public and supplied budget figures. Yale wishes to make their data public and receive a copy of the shared institution-specific data. A number of respondents indicated that they would make their data public but did not include budget figures, perhaps for good reason such as not being able to give accurate figures. A decision was made not to include these libraries in the institution-specific data.

4. The summary report in the NOTICES makes reference to 15 nominees for the "best" mathematics libraries in the world. Twelve of these returned questionnaires, and we used these to profile this top group. They are: Princeton, Harvard (Cabot), Berkeley, Illinois, Michigan, Brown, Courant, Stanford, Chicago, Yale, Cornell, Wisconsin. Note: 11 of the 12 say their data are public (Courant is the exception). In the case of Harvard and MIT, we assume that respondents intended the larger of the two mathematics libraries as their nominees for the "best" mathematics libraries.

## APPENDIX B

### Additional results and comments

#### CONTENTS

<b>QUESTION 11. Comments: elaborations on answers</b> . . . . .	<b>1</b>
<b>QUESTION 12: Comments: suggestions on questionnaire</b> . . . . .	<b>5</b>
<b>Notes on the questionnaire</b> . . . . .	<b>7</b>

This appendix includes comments which respondents made to clarify some answers and to give reaction on the questionnaire. It may be helpful in refining the questionnaire for a future rerun of the library survey.

#### QUESTION 11. Comments: elaborations on answers

##### GROUP I

Harvard-Birkhoff  
Harvard-Cabot  
Brown  
Princeton

This is a combined mathematics, statistics and physics library. Volume count is available only for the entire library (c. 98,000). No monograph/serials breakdown. Physics budget is separate. The library urgently needs more professional staff. Some services which could be performed (e.g. online searches) cannot be done in practice due to lack of time. Unless the acquisitions budget is increased substantially the number of journal subscriptions will have to be reduced in the near future.

Rutgers

Dollar amounts are for math only; other figures also include computer science and statistics.

Penn State

Maryland

The Engineering and Physical Sciences Library at UMCP collects materials in engineering, physics, math, computer science, earth sciences, and related fields like transportation, textiles, water resources, etc. We are located in the Math Building and we have significant collections in math and computer science, but we are not a "Math Library."

Johns Hopkins  
Virginia  
North Carolina  
Wash. U. (St. Louis)

Illinois

8a. We don't keep statistics by dept, but by faculty/grad student and undergrad student. Our figures for 1989/90 are: fac/grad = 8609, student = 28,429 + 4450 reserve use. Thus our use by undergrads would be very heavy and fac/grad as moderate.

Chicago

Minnesota

Michigan

Indiana

Ohio State

The count of volumes represents 22,314 titles including monographs, serials, serial title changes, etc. - any unique title

U. Washington

Berkeley

The expenditure for serials (6a) includes a large number of monographic series and not just the journals counted in 7a. This library will be offering online searching of MathSci and Zentralblatt this year but policies have not been formulated.

Stanford

San Diego

5b, The library has Current Contents tapes loaded and available to faculty from their offices.

Caltech

Caltech's acquisition policy has been to support the current research of the mathematics department, not to cover the field of mathematics comprehensively, with the consequence that the collection is uneven in breadth and depth as research interests have changed over the years.

UCLA-EMS

UCLA-reading room

Utah

The math library just went on the computer this past March. We are discovering quite a few missing books. The math faculty and grad students are slowly adjusting, they each tend to think this is their own personal library. I feel the collection should be maintained for the use of all patrons of the math library.

Rice

The math faculty I spoke with thought that in general, a separate library for mathematics materials is desirable.

Cornell

Northwestern

Wisconsin

Yale

## GROUP II

Rensselaer (main)

Syracuse

Pittsburgh

VPI

N. C. State

Our Math. Lib. is a working collection and is basically on loan from the central library. It is nice to have but would be desirable to have materials more accessible.

Duke

"Duke's library strength is the quality of its monograph collection across many math sub-disciplines, even those far removed from current faculty interests."

"Although the location is very convenient, a larger, more modern facility is needed. The library also needs better security." (MWS)

Florida State

Kansas

Iowa

Current access to "Zentralblatt fur Mathematik" is provided electronically through STN International. Our print edition was cancelled at the end of 1988.

Michigan State

Wayne State

Notre Dame

Kentucky

Vanderbilt

Florida (Gainesville)

All answers about staff, hours, reader spaces were based on the entire Science Library.

Oregon

Southern Cal

Colorado (Boulder)

Oklahoma

Louisiana State

Tulane

Cal-Riverside

Ours is a small reading-room type library, with textbooks used in classes also.

Iowa St. (reading room) These responses apply to our Departmental Reading Room which is only 30' x 45' (plus 80' of shelf space for books in a separate commons room).

Rochester

It was often difficult to separate "mathematics" from the rest of the library collection because we do not have separate statistics.

### GROUP III

Adelphi

Bryn Mawr

George Washington

Figures on the size of collection and expenditures do NOT include Mathematics Subject Classification numbers 62 and 68 since these materials are provided specifically for the Statistics Dept. and Computer Science (Engineering) Dept. If these are included:

7a. Total # journals = 295

7b. Total # of titles (not volumes) = 15,500 est.

Serials expenditures \$80,920; approvals \$16,744;  
other monographs 15,151

Maryland (Baltimore)  
South Carolina

Question 2e - all cataloging and serials support comes from  
main library - 3 graduate assistants for 15 hours each week

Question 7b - We do not keep a volume count. We keep a  
title count. Total titles listed here.

Clemson

Emory

Kansas State

Missouri (Rolla)

Missouri (Columbia)

Northern Illinois

Marquette

Wisconsin (Milwaukee) We have a central library, which makes it difficult to  
answer some of the questions.

Indiana-Purdue (Ind.)

Cincinnati

Kent State

Memphis State

Florida Atlantic

Alaska

Idaho State

Wyoming

North Texas

We have more than 600 journal titles represented and  
complete runs for more than 180.

Arkansas

Texas Tech

Western Michigan

Southern Illinois

Arizona State

Cal-Irvine

St. Louis U.

Alabama (Birmingham)

Hawaii

American U.

Texas (Arlington)

Wichita St.

#### GROUP VI (CANADA)

McMaster

British Columbia

McGill

Looking forward to the results.

Toronto

6a. Serials expenditure. This is together with all other serials in the Main Library's expenditure. Separate exp. is not available at this point.

Alberta

Calgary

York

**QUESTION 12: Comments: suggestions on questionnaire**

9a. Why not ask in addition to rate the quality of the collection as it serves teaching needs of the department?

3c. Difficult to fill out with percentages, especially if you don't separate journals from books.

6a. Have question on % mathematics is to total budget, this year and for preceding 3-5 years.

The questionnaire is pretty good. It arrived at a very bad time for me.

We don't count books vs. journal vols. We don't count math vs. statistics.

The advice for question 1c about the definition of mathematics was useful, but was somewhat difficult to match Math. Subject Classifications to LC (or Dewey) classes.

I included the collection of statistics found in QA274-276 since it is principally used by the Math department and excluded the HA/HB's used by the Econ. Dept. Classical mechanics/theoretical fluid dynamics found in the QA800-900 also presented a problem since the collection is not exclusively math, but also engineering/physics oriented.

Question 2d is not clear. Does it refer to journals or to the entire collection.

Some measure of use would have been interesting at least with regards to the separate Math Libraries. We are very involved in a preservation project and I would have been interested to know what others are doing.

Easy to work with.

If the mathematics collection is part of a main library, not a branch, some questions are impossible to answer.

The word "environment" in question 4 is vague -- did not know what was meant.

Collection utilization statistics would have been interesting.



Question 4a is ambiguous. Not clear whether it refers to physical environment, total environment, or?

A questionnaire of this type is a very good idea.

The survey tries to cover too many areas. A more focused approach (shorter questionnaire) might provide better information.

A separate form (i.e. separate questions) for Reading Rooms like ours would make more sense and perhaps skew your statistics less.

Doesn't seem to take into account the "full-service" library.

I would have preferred two questionnaires: one for the math librarian and one for the mathematics dept. (specifically for questions 4,9,10).

This form is designed for universities with a separate Math Library. We do not have one, so the answers may not be meaningful. If you want data from institutions like us where Math books are housed in a central library, you need to provide a separate set of questions.

More information about the intended use of the data collected would have been a plus.

Questions 10a and 4a were too unstructured to allow for meaningful responses. 10a would have received some response if a comparison parameter had been suggested. Comparison parameters such as those libraries that faculty are most familiar with or libraries within a given radius would have generated some response from the Math faculty. Question 4a would have generated a better response with an example. The question as formulated is vague and renders it useless as a valid survey question.

It would have been helpful to have a questionnaire for central libraries only and another form for universities with separate mathematics collections. The results might be more accurate if reported in this fashion.

A relevant question would be: Estimate number of mathematics faculty and graduate students served by your library. The size of the patron population is an important variable.

It is very difficult to complete for those universities not having a SEPARATE mathematics library.

This questionnaire was difficult to fill out for a library where the math collection is integrated with the rest of the science collection and not a separate library.

Accurate answers to some questions required more time/effort than I could afford.

## Notes on the questionnaire:

When the library survey is run again, "professional librarian" should probably be defined.

The numbers on FTE professional librarians had to be adjusted, because in some cases blanks should be read as 0. This occurs in branch subject libraries where respondents answered other parts of the question. There were 8 occurrences; we called some and confirmed the situation, and on the basis of this changed all 8 from blank to 0 FTE professional librarians. They are: Group I - Northwestern, Utah; Group II - Dartmouth, Tulane; Group III - South Carolina, Missouri-Columbia; Group VI - Vancouver, McGill.

Those classified as having 0 FTE professional librarians are as follows:

Group I (4):	Yale, UVA, Northwestern, Utah
Group II (3):	Dartmouth, Connecticut, Tulane
Group III (8):	Tufts, Missouri-Columbia, Illinois State Normal, Montana State, Kent State, Memphis State, Brigham Young, South Carolina
Group VI (2):	Vancouver, McGill

**1990  
ANNUAL  
AMS-MAA SURVEY**

**American Mathematical Society**  
P.O. Box 6248, Providence, Rhode Island 02940  
Tel: 401-455-4000

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**AMS ad hoc  
Library Committee**

Nancy D. Anderson  
University of Illinois  
Richard A. Askey  
University of Wisconsin  
Robert S. Doran  
Texas Christian University

Dorothy McGarry  
University of California, Los Angeles  
James L. Rovnyak, Chair  
University of Virginia  
George B. Seligman  
Yale University

Mary Ann Southern  
Duke University  
John W. Weigelt II  
University of Michigan

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September, 1990

Dear Colleague:

We seek your cooperation in a collaborative project between librarians and mathematicians to collect data to replace anecdotal information about mathematics research libraries.

One goal of the project is to understand better the mechanisms by which mathematicians access and use information. Another is to establish better liaison between mathematicians and librarians.

The attached questionnaire entitled **Mathematics Library Survey** was written by the AMS ad hoc Library Committee, which consists of four librarians and four mathematicians. The survey is being conducted with the assistance of the AMS-MAA Data Committee.

**Please give this questionnaire to the librarian in charge of the Mathematics Library, who is asked to complete and return the form by October 5, 1990, to the AMS in the envelope provided.**

Questions on responses to the survey may be directed to Nancy D. Anderson, Mathematics Library, University of Illinois, 1409 Green Street, Urbana, IL 61801.  
(tel: 217-333-2884, FAX: 217-333-9576, electronic mail: NDANDERS@vmd.cso.uiuc.edu).

For the purposes of the survey, MATHEMATICS LIBRARY means the main mathematics collection which is used by the mathematics faculty and graduate students. In some institutions there may be more than one library or reading room which is important to the research of mathematics faculty and graduate students. In such cases, institutions should submit more than one form; in NO case should data reflect composite information from more than one library. Additional copies of the questionnaire may be obtained by calling Monica Foulkes at the AMS (tel: 401-455-4000).

The results of the survey will be announced in a report by the AMS ad hoc Library Committee. In addition, special provision is being made to allow respondents to see more detailed data from the survey. Many librarians have asked to share their data and receive a special edition of the results in which names of institutions are identified. If you wish to be listed in this special edition and to receive a copy, you must respond YES in the appropriate boxes on the questionnaire. Otherwise your data will be released in summary form only, and your institution will not be identified.

Please respond to as many questions as you can with the time that you have.

Thank you for your assistance.



James L. Rovnyak, Chair  
AMS ad hoc Library Committee

1990  
ANNUAL  
AMS-MAA SURVEY

# MATHEMATICS LIBRARY SURVEY

Return this form to:

AMERICAN MATHEMATICAL SOCIETY, P.O. BOX 6248, PROVIDENCE, RI 02940-6248  
Tel: 401-455-4000 Fax: 401-331-3842 (Attn: M. Foulkes)

Institution \_\_\_\_\_

Address \_\_\_\_\_

City

State

Zip

My data are public information, and the name of my institution may be identified: ☐ Yes ☐ No

If "Yes", do you wish to receive a special summary of institution-specific data from all such respondents? ☐ Yes ☐ No

## GENERAL

"Mathematics Library" means the main mathematics collection used by the mathematics research faculty and mathematics graduate students. Do NOT include mathematics holdings in other libraries on campus.

If the Mathematics Library is part of a larger unit, the DATA SOUGHT REFER ONLY TO MATHEMATICS and should not include other collections (physics, astronomy, etc.). Where data for mathematics cannot be extracted or estimated, leave the question blank.

For the purpose of this survey, "journals" are to be considered as regularly published periodicals and do not include monographic series, annual directories, etc.

"Serials" include journals, standing-order numbered lecture notes, standing-order numbered monographic series, etc.

Questions on how to respond to this questionnaire may be directed to Nancy D. Anderson, Mathematics Library, University of Illinois, 1409 Green Street, Urbana, IL 61801.  
Tel: 217-333-2884. FAX: 217-333-9576.  
Email: NDANDERS@vmd.cso.uiuc.edu

## STRUCTURE OF THE MATHEMATICS LIBRARY

1.a Which of these structures best describes the Mathematics Library for which data are being reported? Check one.

☐ Branch library of a university library system, containing only mathematics

☐ Departmental reading room

☐ Branch library of a university library system, containing mathematics together with one or several of the mathematical sciences, such as statistics, computer science, etc.

☐ Branch library of a university library system, containing mathematics together with one or several sciences such as physics, astronomy, etc.

☐ Part of a science/engineering library

☐ Part of a general library

☐ Other (describe) \_\_\_\_\_

1.b Is the Mathematics Library housed in the same building as the mathematics faculty? ☐ Yes ☐ No

- 1.c The mathematical sciences are interpreted as fields covered in Mathematical Reviews, Mathematics Subject Classification numbers 00-68, which include mathematical statistics and theoretical computer science. The data you report may also include applications areas represented in the Mathematics Subject Classification numbers 70-94, if these are primarily for the use of mathematics research faculty.

Some mathematics libraries may have additional holdings in areas such as theory and applications connected with statistics, computer science, biology, medicine, economics, etc., which are generally not of interest to the mathematics research faculty but primarily serve some other clientele. Please exclude such additional holdings; but, if this is not possible, say if the data you report include significant additional holdings in the areas of:

☐ statistics ☐ computer science ☐ other (identify) \_\_\_\_\_

## POLICIES AND OPERATION OF THE MATHEMATICS LIBRARY

- 2.a Does the Mathematics Library have:

open stacks for browsing?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
bound mathematics journals together in one area?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
current unbound mathematics journal displayed separately from other subjects?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
interlibrary loan service?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
database searching by a library staff member?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
a security system?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

- 2.b Number of reader spaces in the Mathematics Library \_\_\_\_\_

- 2.c Do bound journals circulate?

☐ Yes ☐ No

If YES, do all bound journals circulate or only some?

☐ All ☐ Some

- 2.d What is the loan period for mathematics faculty? \_\_\_\_\_

mathematics graduate students? \_\_\_\_\_

undergraduates? \_\_\_\_\_

Circulation policy for other users, if different \_\_\_\_\_

- 2.e Number of staff in the Mathematics Library:

Number of FTE professional librarians \_\_\_\_\_ Number of FTE support staff \_\_\_\_\_

Number of FTE student assistants (describe) \_\_\_\_\_

- 2.f How many hours is the library open and staffed in a typical week?

When classes are in session (such as a week in the fall semester with no holidays) \_\_\_\_\_

In the summer session \_\_\_\_\_

Between sessions (not holidays) \_\_\_\_\_

- 2.g Do mathematics faculty have keys?

☐ Yes ☐ No

Do mathematics graduate students have keys?

☐ Yes ☐ No If YES, check ☐ Some ☐ All

## SPACE IN THE MATHEMATICS LIBRARY

3.a Describe the space problem in the Mathematics Library:

☐

None

☐

Mild

☐

Moderate

☐

Severe

☐

Crisis

3.b What happens to materials that cannot be stored in the Mathematics Library? Identify all that apply for a typical recent 12-month period.

Number of volumes moved to stacks of other libraries on campus

\_\_\_\_\_

Number of volumes put in remote storage in same building

\_\_\_\_\_

Number of volumes put in remote storage in different building(s)

\_\_\_\_\_

3.c Estimate overall how many volumes are in other locations because of space shortage. Give the estimate as a percentage of the total number of volumes if all volumes were under one roof today.

Bound journal volumes

\_\_\_\_\_ %

Everything else

\_\_\_\_\_ %

3.d What criteria are used to decide which volumes are removed to a different location?

\_\_\_\_\_

## THE ENVIRONMENT

*These questions are attitudinal. Librarians may wish to consult experienced mathematics library users in answering them.*

4.a Rate the overall quality of the environment as it applies to the atmosphere for scholarship:

☐

Poor

☐

Fair

☐

Good

☐

Very good

☐

Excellent

4.b What are the major factors that affect environment?

\_\_\_\_\_

## ELECTRONIC MEDIA

5.a The catalog of the Mathematics Library is:

☐

in manual card form only

☐

completely online

☐

partly manual and partly online

☐

with access from faculty offices

☐

with access from faculty offices

☐

in other form such as microform (describe)

5.b Check the electronic products available inhouse in the Mathematics Library:

☐

MathSci tapes (full database)

☐

with access from faculty offices

☐

MathSci on CD ROM

☐

Science Citation Index on CD ROM

☐

with access from faculty offices

☐

with access from faculty offices

5.c Is there access to MathSci through a vendor in the Mathematics Library? ☐ Yes ☐ No

If YES, describe search costs and subsidies \_\_\_\_\_

Is there access to MathSci through a vendor elsewhere on campus? ☐ Yes ☐ No

If YES, describe search costs and subsidies \_\_\_\_\_

5.d Is there access to Science Citation Index through a vendor in the Mathematics Library? ☐ Yes ☐ No

If YES, describe search costs and subsidies \_\_\_\_\_

Is there access to Science Citation Index through a vendor elsewhere on campus? ☐ Yes ☐ No

If YES, describe search costs and subsidies \_\_\_\_\_

## EXPENDITURES AND INCOME SOURCES

6.a Itemize total expenditures for collection development (mathematics materials) in the Mathematics Library for the fiscal year 1989-90.

Serials \$ \_\_\_\_\_

Electronic products, if not included above \$ \_\_\_\_\_

Other items (monographs, etc.) \$ \_\_\_\_\_

Approval orders for other items, if not included above \$ \_\_\_\_\_

Electronic products, if not included above \$ \_\_\_\_\_

6.b What assistance does the mathematics department provide?

Contribution of money for collection development in fiscal year 1989-90 \$ \_\_\_\_\_

(This may include subscriptions to journals given to the library or journals received on institutional memberships given to the library)

Other forms of assistance (describe):

(Purchase of electronic products, computers, copy machine, other equipment, student help, etc.)

\_\_\_\_\_  
\_\_\_\_\_

6.c If there is a journal exchange program, please describe it:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6.d What income is received from gifts, endowment funds, and other sources? Identify and estimate:

\_\_\_\_\_  
\_\_\_\_\_

## THE COLLECTION IN THE MATHEMATICS LIBRARY

7.a What is the number of currently received mathematics journal titles in the Mathematics Library? \_\_\_\_\_

7.b What is the total number of mathematics volumes in the Mathematics Library? \_\_\_\_\_  
Do NOT include materials in remote storage or in other libraries on campus.

Breakdown the previous figure:

Number of bound journal volumes \_\_\_\_\_

Everything else \_\_\_\_\_

7.c Describe microfiche and microfilm holdings: \_\_\_\_\_  
\_\_\_\_\_

## CLIENTELE SERVED

8.a Describe the level of use of the collection in the Mathematics Library by:

Don't know   None   Light   Moderate   Heavy   Very heavy

Mathematics research faculty and graduate students

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Other research faculty and graduate students

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Upper division undergraduates

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

8.b Does the Mathematics Library maintain a reserve collection for course materials

☐ for mathematics graduate students?

☐ for undergraduate mathematics majors?

☐ for lower division undergraduates?

8.c What are the most frequently heard requests, comments, compliments or complaints by mathematics faculty and mathematics graduate students? \_\_\_\_\_  
\_\_\_\_\_

## RATING OF THE COLLECTION

*These questions are attitudinal. Librarians may wish to consult experienced mathematics library users in answering them.*

9.a Rate the overall quality of the collection in the Mathematics Library as it serves the research programs of the mathematics department.

Poor   Fair   Good   Very good   Excellent

Journals

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Monographs

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Electronic media

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

9.b Comments \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## IDEAL MODELS OF MATHEMATICS LIBRARIES

*These questions are attitudinal. Librarians may wish to consult experienced mathematics library users in answering them.*

10.a Identify what you think are among the best mathematics libraries in the world.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

10.b What are the qualities that make these libraries the best?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

## COMMENTS

11. Please elaborate or clarify any of your answers if you feel it necessary, or add any comments.  
Continue on the back of this page if required.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

12. Do you have comments or suggestions on the form of this questionnaire?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

Name and title of person filling out this questionnaire

Date

Mailing address if different from that on page 1

Telephone

Electronic mail

Fax number

Return this questionnaire by October 5, 1990, to:  
AMS-MAA Survey, Attn: M. Foulkes, P.O. Box 6248, Providence, RI 02940-6248.

**Appendix D (omitted).**

This is a reprint of the article:

*Mathematics classification and subject cataloging at the Library of Congress*,  
PAM Bulletin **18**, no. 4 (May 1991), 7–12;  
<http://pam.sla.org/wp-content/uploads/2011/08/may1991.pdf>.