

Mathematics library news 15 May 2016

Mathematical Surveys and Monographs and Mathematics Culture

The AMS's *Mathematical Surveys and Monographs* book series is very heavily used. In February 2015 I took a closer look, then analyzed the results in October 2015. The original motivation was to investigate whether it was better for the Library to purchase digital copies of this series than print. The results ended up being informative about mathematical culture of print book usage.

Available data are the Library's computer system anonymized transaction logs, which record each month of transactions, but not dates or times, although one might guess that the transactions are in time order.

In order to focus on mathematical usage patterns, the original searches in February 2015 retrieved books with "QA" call numbers. This excluded 7 in the series with "QC" (physics) and 1 each with "RA" and "TC" (medicine and hydraulic engineering, respectively). The search also inadvertently left out the first 18 volumes of the series prior to 1984, when the series title was *Mathematical Surveys*.

Transaction logs were used to find the duration of checkouts during 2009-2014 for the top 20 by cumulative check-outs since the inauguration of the computer system in 2001, which I am able to find more easily by another kind of search using the backend of the library system. Two of the top 20, *Problem of Moments* by Shohat and Tamarkin (1943), and *Discontinuous Groups and Automorphic Functions* by Lehner (1964), were unfortunately excluded. But the results were still illuminating.

Of the top 20 in my results, 12 were checked out most of the months of the entire 72-month period, and 4 were continually checked out for the entire period. More interesting, however, were two volumes that were checked out for 88% of that period, but were repeatedly returned and checked out in the same month. This suggests that these books were repeatedly trading borrowers. The two are both by Sigurdur Helgason: *Groups and Geometrical Analysis* (2000) and *Geometric Analysis on Symmetric Spaces* (2008).

A more up-to-date top 20 list, not excluding those shelved in "QC" or published prior to 1984, is on the next page.

AMS's Study of Mathematicians' Information Behavior

In a similar vein, the American Mathematical Society is currently doing an ethnographic study of how mathematicians use online mathematical resources for research, teaching, or their careers. The AMS is interested in this question as a publisher. At the Special Libraries Association's annual conference in Philadelphia this summer I look forward to a presentation of results of this study by Robert Harington. A preliminary account is at: <https://scholarlykitchen.sspnet.org/2015/04/22/ethnography-a-scientist-discovers-the-value-of-the-social-sciences/>

MathSciNet Research Guide

This may offer helpful orientation to MathSciNet: <http://guides.lib.lsu.edu/c.php?g=464355>

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Author	Title	Publication year	Cumulative checkouts since 2001	Last used
Bogachev, Vladimir Igorevich	Gaussian measures	1998	52	20160202
Helgason, Sigurdur,	Groups and geometric analysis	2000	49	20160418
Humphreys, James E	Conjugacy classes in semisimple algebraic groups	1995	46	20160414
Jantzen, Jens Carsten	Representations of algebraic groups	2003	45	20160201
Taylor, Michael Eugene,	Noncommutative harmonic analysis	1986	43	20110802
Etingof, Pavel I.; Frenkel, Igor; and Kirillov, Alexander	Lectures on representation theory and Knizhnik-Zamolodchikov equations	1998	36	20151218
Korogodski, Leonid I; and Soibelman, Yan	Algebras of functions on quantum groups	1998	35	20151218
Carmona, Rene; and Rozovskii, Boris; eds.	Stochastic partial differential equations : six perspectives	1999	34	20151204
Helgason, Sigurdur,	Geometric analysis on symmetric spaces	2008	34	20160418
Maly, Jan; and Ziemer, William	Fine regularity of solutions of elliptic partial differential equations	1997	33	20151219
Hiai, Fumio; and Petz, Denes	The semicircle law, free random variables, and entropy	2000	32	20141216
Wall, Charles Terence Clegg	Surgery on compact manifolds	1999	32	20100511
Shohat, James Alexander; Tamarkin, J.D.	The problem of moments	1943	31	20090605
Taylor, Michael Eugene,	Tools for PDE : pseudodifferential operators, paradifferential operators, and layer potentials	2000	30	20151219
Helgason, Sigurdur,	Geometric analysis on symmetric spaces	1994	30	20150514
Lehner, Joseph	Discontinuous groups and automorphic functions	1964	28	20141119
Kamada, Seiichi	Braid and knot theory in dimension four	2002	28	20150407
Diestel, Joel; and Uhl, J.J.	Vector measures	1977	27	20151219
Molev, Alexander	Yangians and classical Lie algebras	2007	26	20151218
Wolf, Joseph Albert	Harmonic analysis on commutative spaces	2007	26	20151116