

Mathematical Sciences Collection Development Policy

1981; Revised: Dec. 1991; Oct. 2002

I. Academic Programs Served

A. Departments

The collection supports present and anticipated teaching and research in the field of mathematical sciences and related sub-disciplines. Many mathematics courses are extra-departmental requirements for programs offered by departments in the College of Business, the College of Education, the College of Liberal Arts and Sciences, the College of Professional Studies, the College of Engineering and Engineering Technology and for pre-professional programs.

B. Degrees Offered in the Subject Area:

1. Bachelor of Science (B.S.) offered by the Department has five emphases: (a) general, (b) applied mathematics, (c) computational mathematics, (d) probability and statistics, or (e) mathematics education. The department also offers a minor in Mathematical Sciences or in Applied Probability and Statistics.

2. Graduate Programs: The M. S. in mathematics may follow one of four specializations: (a) pure mathematics, (b) applied mathematics, (c) computational mathematics, or (d) mathematics education. The department also offers the M. S. in Applied Probability and Statistics. The Doctor of Philosophy program focuses on in-depth studies of the research interests of the Department and experience with applications of the mathematical sciences.

3. New Programs: The department has been operating a Statistics Consulting Lab that provides services to other NIU research programs and to outside business and industry. A Ph.D. program in Statistics is one of the department's top priorities.

II. Clientele Served

The Department of Mathematical Sciences is the principal unit served by the Libraries' collections. Undergraduate and graduate students and the faculty of this department are the primary users. The department also serves students who desire mathematics courses to fulfill the University mathematics requirement or the science requirement for non-mathematics majors in the General Education Program. Minors offered in Mathematical Sciences, or applied probability and statistics are of special interest to students majoring in physical or social sciences or business. Other departments require mathematics courses as extra-departmental components of their programs (see section I. A., above). Current areas of teaching and research include algebra and number theory, analysis, applied mathematics, geometry and topology, computational mathematics, probability theory, statistics, and mathematics education.

III. General Collection Policy Considerations

A. Languages Collected.

English is the primary language of the collection, with secondary emphasis on French, German, and

Russian. Of particular importance are non-English works for which English translations are not available. Languages other than those listed above are collected on a selective basis.

B. Chronological Emphasis.

Emphasis is on current research and teaching developments. For the history of mathematics, see section III .F. below.

C. Geographical Limitations or Priorities.

Inapplicable.

D. Formats of Materials Collected.

Materials are predominantly in the form of periodicals, monographs, texts, reference works (dictionaries, directories, bibliographies, abstracts, indexes), monographic series, and conference proceedings. Dissertations and theses from other institutions will be added very selectively. Electronic resources, such as bibliographic databases and full-text journals, will be added to the collection when resources permit.

E. Publication Dates.

The emphasis is on the acquisition of current imprints, i.e., materials published within the last five years. Publications containing writings of important individuals in the history of mathematics may fall outside of the five-year span, but retrospective and out-of-print purchasing is performed on a selective basis. Older publications may be purchased in original format or in reprint editions, and infrequently in microform, depending upon availability and cost.

F. Special Considerations.

Writings and collected works of significant individuals are collected. Such items include works of Abel, Ahlfors, Jakob Bernoulli, Birkhoff, Bochner, Borel, Brouwer, Caratheodory, Chebyshev, Clifford, Dedekind, Dickson, Dirichlet, Eisenstein, Frege, Frobenius, Galois, Gauss, Grassmann, Hadamard, Hardy, Hausdorff, Hecke, Hilbert, Hopf, Hurwitz, Jacobi, Kodaira, Kronecker, Leibniz, Levy, Littlewood, Painleve, Peano, Poincare, Polya, Ramanujan, Riemann, Riesz, Robinson, Salem, Siegel, Schur, Sylvester, Szego, Thue, Ulam, von Mises, von Neumann, Weierstrass, Weyl, Whitehead, Wiener, Yamabe, and Zariski.

IV. Mathematics Collecting Levels

- Philosophy and Other Collected Works
LC Class(es): QA 1 -18
Volume Count: 3,070
Present Collection Strength: C
Collecting Activity Now: C
Desired Strength: C
- Mathematical Logic
LC Class(es): QA 9 - 10
Volume Count: 415
Present Collection Strength: C
Collecting Activity Now: C
Desired Strength: C

- Study and Teaching (textbook portion)
LC Class(es): QA 11 -19
Volume Count: 540
Present Collection Strength: C
Collecting Activity Now: D
Desired Strength: D
- History, General Work, Instruments and Machines, tables
LC Class(es): QA 20 - 74
QA 77 - 99
Volume Count: 1,410
Present Collection Strength: C
Collecting Activity Now: C
Desired Strength: C
- Elementary Mathematics/Arithmetic (textbook portion)
LC Class(es): QA 101 - 141
Volume Count: 630
Present Collection Strength: C
Collecting Activity Now: D
Desired Strength: D
- Algebra and Number Theory, including Category Theory, Group Theory, Linear Algebra, Ring Theory
LC Class(es): QA 150 - 271
Volume Count: 3,460
Present Collection Strength: B
Collecting Activity Now: B
Desired Strength: B
- Probability and Statistics
LC Class(es): QA 273 - 295
Volume Count: 2,800
Present Collection Strength: B
Collecting Activity Now: B
Desired Strength: B
- Applicable Mathematics including Linear Programming, Automata, Coding Theory, Graph Theory, System Analysis, Control Theory, Optimatization, Combinatorics, Numerical Analysis
LC Class(es): QA 264 - 268,
QA 297 - 299.4,
QA 166,
QA 401 - 433
Volume Count: 2,100
Present Collection Strength: B
Collecting Activity Now: B
Desired Strength: B
- Mathematical Analysis including Calculus, Measure Theory, Functional Analysis, Theory of Functions, Complex Variables, Differential Equations

LC Class(es): QA 300 - 387
Volume Count: 3,200
Present Collection Strength: B
Collecting Activity Now: B
Desired Strength: B

- Geometry and Topology
LC Class(es): QA 440 - 699
Volume Count: 1,835
Present Collection Strength: B
Collecting Activity Now: B
Desired Strength: B
- * Experimental Mathematics: Education Research
LC Class(es): QA 11 - 19
QA 36
QA 39 - 43
QA 106 - 141
Volume Count: Present Collection Strength: B
Collecting Activity Now: B
Desired Strength: B

Special Observations.

Total number of books = 19,460. There are also 12,000 bound volumes of periodicals.

*Materials about experimental mathematics education research are within these class numbers, but not all books included under these classes are related to the subject. The highest priority for collection development is applicable mathematics because of the new doctoral program. The collection has a sizable number of undergraduate texts in the QA 100-150, QA 295, QA 300-310 and QA 331 sections, and there is no need to continue to emphasize acquisition of this type of publication.

V. Other Resources

At NIU, the materials related to mathematical sciences are also to be found in the Government Publications Department, the Microforms Department of Founders Library, and in Faraday Library.

Off-Campus: Resources are particularly important in relation to efforts to share library resources, especially journals and periodicals.

VI. Special Remarks

The Math Reading Room at DuSable Hall holds current issues of math journals for one year. There is also a small reference collection in the reading room.