MATHEMATICS

I. General Statement of Collection Development Policy

The Collection supports the study and research needs of faculty, graduate students and undergraduate students in the Mathematics Department. The collection covers mathematics and statistics.

II. Description of the University Program

The Mathematics department offers Bachelor's and Master's degrees.

III. Interdisciplinary Elements of Subject Area

Some materials that are collected to support mathematics are classified in other areas, for example, some are classified in each of the other areas of biology, computer science, economics, physics.

IV. Formats and Types of Materials

Print and electronic materials such as books and periodicals will be the most common acquisitions, but microforms and audiovisuals are considered and added as needed. Preference may be given to electronic format, depending upon such factors as cost, availability of secure archives and the needs of the program. Duplicative format collecting is avoided.

In consonance with the academic endeavors of the University community, the emphasis is on serial and periodical titles, research level monographs, and advanced level textbooks. The following types of materials are collected:

Monographs – The library collects research and major trade monographs.

Reference – The Reference Collection supports the curriculum emphases of the various academic programs and the information needs of the Wake Forest community. Major reference materials such as bibliographies, dictionaries, encyclopedias, indices and abstracts are collected.

Serials – A serials collection constitutes an integral part of the library's research resources in the sciences. The serials collection represents the historical and current requirements of the Mathematics Department and will continue to be developed as new courses are added. Funds are also available for a limited number of interdisciplinary journals.

Abstracts and Indexes – The library subscribes to a broad range of databases covering disciplines in the sciences.

Proceedings – Proceedings or reports of conferences, symposia and international congresses are collected selectively.

Theses and dissertations – Dissertations and theses which have not been commercially published are rarely acquired, and then only as specific faculty or student interest warrants.

Textbooks and Anthologies – In general the library does not acquire textbooks adopted as required texts for any given courses nor textbook-style anthologies. Only a few introductory textbooks are purchased in each area of mathematics.

<u>Microforms</u> – Microforms are purchased to fill in gaps in periodical holdings or in cases where the information is not available in electronic or print format.

<u>Non-print materials</u> – Videos and audio formats that support the curriculum are purchased. Non-print format collecting is subject to change according to available presentation technology. Streaming video databases augment the collections of these resources.

V. Languages

The collection consists primarily of works in English; important foreign-language works are also purchased, if necessary.

VI. Geographic Areas (Subject Approach)

Not applicable.

VII. Time Periods (Subject Approach)

Emphasis is on materials published within the last ten years.

VIII. Dates of Publication

The collecting effort is directed primarily at current and recent scholarship. However, retrospective titles may be acquired in response to changes in the curriculum and other academic initiatives (new courses, minor and interdisciplinary programs), faculty research interests, and significant lacunae in the collection. Very selective retrospective purchasing may involve reprints, microform or electronic archives.

IX. Subject Area and Level of Collecting Intensity

Collecting intensity designations should reflect the Department's present and anticipated curriculum, and should be at levels that enable the Department to implement its academic program.

QA Mathematics	Desirable Level
Philosophy	
Foundations of arithmetic. Set Recursive function	3
Mathematical logic	3
Model theory	3
Boolean algebra	3
History of mathematics	3
Biography	3
Mathematical recreations	3
Algebra	
Combinatorics. Combinatorial analysis	4
Graph theory	4
Homological algebra	4
Theory of groups	3 to 4
Lattice theory	3 to 4
Linear and multilinear algebra. Matrices	4

Approximation theory	3 to 4
Theory of numbers	4
Universal algebra	4
Associative rings and algebras	4
Nonassociative rings and algebras	4
Game theory	3
Probabilities	
Combinatorial probabilities	3 to 4
Stochastic processes	3 to 4
Mathematical statistics	
Graphic methods	4
Sampling theory	4
Sampling distributions	3 to 4
Estimation theory	4
Testing of hypotheses	4
Multivariate analysis	3 to 4
Nonparametric statistics	4
Analysis of variance and covariance. Experimental	3 to 4
Decision theory	3 to 4
Bayesian statistics	4
Time series analysis	3 to 4
Numerical analysis	4
Analysis	
Nonstandard analysis	3
Calculus of variations	3 to 4
Functional analysis	4
Measures, integration, derivatives	4
Complex analysis	4
Functions of a real variable	4
Special functions	3 to 4
Differential equations	4
Geometry	
Elementary geometry	3
Algebraic geometry	3 to 4
Topology	3 to 4
Algebraic topology. Combinational topolory	3 to 4
Differential geometry	3
Analytic mechanics	
Dynamical systems	3 to 4
Nonlinear analysis	4

HA STATISTICS (Social Science)

History, biography	3
Time-series analysis	3
Sampling, regression, and correlation, hypothesis testing, estimation, decision theory	3
Statistical data, by region or country	2

QH, RH   BIOLOGY, MEDICINE

Mathematical biology	3 to 4
Biological models	3 to 4
Biometry	3 to 4
Biostatistics, statistics in medicine	3 to 4

HD BUSINESS

Operations research	3

QA COMPUTER SCIENCE

Graph algorithms	3 to 4
Symbolic computation	3 to 4

HB ECONOMICS

Mathematical economics	3

QC PHYSICS

Mathematical physics	3 to 4

X. Deselecting Library Materials

The continuous review of library materials is important as a means of maintaining an active library collection. Materials will be withdrawn from the collection in accordance with the Deselection policy.

Molly Keener, Library Liaison, December 2014.