Master of Arts in Mathematics

Why study mathematics?

Because mathematics is a framework upon which humanity builds an understanding of the world.

Mission of the Graduate Program:

The mission of the Graduate Program of the Department of Mathematics is to prepare students for leadership roles in meeting the mathematical needs of our society and to produce professional mathematicians for positions in universities, colleges, industry, governmental agencies, and research centers.

Master of Arts in Mathematics:

The Mathematics Department offers the degree of Master of Arts (M.A.) in Mathematics. The M.A. entails study of advanced mathematics, typically culminating in a substantial thesis or final project demonstrating expertise in a particular area of mathematics. It is intended for students who plan to pursue a Ph.D. subsequently, as well as those who intend to work outside academia. A broad range of specialties is possible; research interests of department faculty include algebra, analysis, combinatorics, control theory, dynamical systems, geometry, numerical analysis, partial differential equations, probability, and statistics. The program offers three options for the M.A. degree, as detailed in the section Degree Requirements. College-wide requirements for graduate students may be found in the Graduate School Catalog.

Graduate Admission

The minimum prerequisites for admission are an undergraduate degree from an accredited institution with a program of study in mathematics and a record of achievements that shows strong promise of success in graduate school. A 3.0 cumulative grade-point average in undergraduate studies and a 3.0 grade-point average in mathematics are required for admission.

A prospective student should have taken courses in mathematics at the undergraduate level in abstract algebra, linear algebra, and advanced calculus or introduction to analysis. Such courses should be comparable to KU courses numbered MATH 500, MATH 558, and MATH 590. It is also beneficial to students if they have minimum preparation in probability/statistics or numerical analysis (like KU courses MATH 627/MATH 628 and/or MATH 581). We also recommend that you take introductory courses in complex analysis, differential equations, and/or topology before considering graduate work in mathematics at KU (see for example KU courses numbered MATH 646 and MATH 647).

The department requires the general Graduate Record Examination (GRE) for all incoming students. International students whose native language is not English also must fulfill English language requirements specified by university policies.

Applicants must submit a graduate application online (http://graduate.ku.edu/application-process/). In addition the following required materials must be submitted online:

• Transcript from each college or university the applicant has attended (an official transcript must be sent upon acceptance and completion of degree),
• Applicant’s résumé/curriculum vitae,
• A list of the textbooks used in the mathematics courses beyond the calculus level that the applicant has taken,
• A statement of purpose indicating the applicant’s mathematical preferences and interests, and
• 3 letters of reference.

Official GRE scores must be sent to the department. Non-native speakers of English must meet English proficiency requirements as described here (http://graduate.ku.edu/english-proficiency-requirements/).

Incomplete applications will not be considered. The minimum admission requirements do not guarantee admission. The graduate committee of the Department of Mathematics evaluates candidates and makes recommendations to the Office of Graduate Studies regarding admission. The number of students admitted to the program changes from year to year, and admissions are competitive based on all application materials.

There are no additional application forms for financial support. Students are considered for support based on merit. Most of the students accepted by the program receive an offer of financial support in the form of a Graduate Teaching Assistantship. The number of GTAs available is limited. Further information about applications and admission (http://www.math.ku.edu/academics/graduate/admissions.html) is available online.

Contact the department:

The University of Kansas
Department of Mathematics
Graduate Admissions Director
Snow Hall
1460 Jayhawk Blvd., Room 405
Lawrence, KS 66045
mathadmit@ku.edu

The M.A. program is flexible and accommodates the different interests and backgrounds of students. Some of the courses required for the M.A. are common to the Ph.D. tracks, and we encourage students interested in an M.A. to take advanced Ph.D. classes among their selective course work. Many Ph.D. students earn an M.A. on the way to the doctoral degree. They have the option to do so after completing the qualifying examinations. A candidate for the M.A. must fulfill general requirements. At least 30 hours of appropriate graduate credit must be earned with at least a B average, and a research component must be included in the candidate’s program. Usually the research component is fulfilled by writing a thesis or by completing appropriate seminars, independent research, or
advanced graduate courses. In addition, a candidate must complete one of these options:

Option 1

Pass the departmental Ph.D. written qualifying examinations and complete 30 hours of courses at the 700 level or higher, of which 12 hours are at the 800 level or higher.

Option 2

Complete the following courses and pass an oral examination:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 800</td>
<td>Complex Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 810</td>
<td>Real Analysis and Measure Theory I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 820</td>
<td>Introduction to Topology</td>
<td>3</td>
</tr>
<tr>
<td>MATH 830</td>
<td>Abstract Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 831</td>
<td>Abstract Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

Select and at least 9 of the remaining 15 hours from courses numbered 700 or above

The additional 9 hours may include the credit (a minimum of 2 hours and a maximum of 6 hours) used to fulfill a research component (e.g., enrollment in MATH 896, MATH 899, MATH 990, MATH 993, or advanced courses). An M.A. candidate must demonstrate an ability to communicate mathematics both orally and in written form. An M.A. candidate not selecting the thesis option (MATH 899) is expected to write a technical report as part of his or her research component. A candidate must give a short (30 to 60 minutes) presentation of her or his research in the first part of the oral examination.

Option 3

Complete 36 credit hours of courses numbered 600 or above:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 727</td>
<td>Probability Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 765</td>
<td>Mathematical Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 781</td>
<td>Numerical Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 790</td>
<td>Linear Algebra II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 791</td>
<td>Modern Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete a research component and pass an oral examination. At least 24 of the 36 hours must be in courses numbered 700 or above. Course equivalents to MATH 727, MATH 765, MATH 781, MATH 790, or MATH 791 may be substituted if approved by the graduate studies committee. An M.A. candidate may, with prior approval of the chair of the graduate studies committee, substitute up to 9 hours of courses taught in other departments. Also, the 36 hours may include the credit (a minimum of 2 hours and a maximum of 6 hours) used to fulfill a research component (e.g., enrollment in MATH 896, MATH 899, MATH 990, MATH 993, or advanced courses). An M.A. candidate must demonstrate an ability to communicate mathematics both orally and in written form. In particular, an M.A. candidate not selecting the thesis option (MATH 899) is expected to write a technical report as part of his or her research component. Also, a candidate must give a short (30 to 60 minutes) presentation of her or his research in the first part of the oral examination. A proposed program of study must be submitted to the chair of the graduate studies committee at the earliest feasible time, preferably during the second semester of enrollment. The degree is awarded only on the basis of an approved program, which can, however, be revised.