MASTER OF SCIENCE: STATISTICS

Student Learning Outcomes

Students graduating from this program will:

- demonstrate an understanding of basic statistical theory by being able to synthesize statistical concepts, assumptions, and theorems, and be able to explain how such theory gives rise to the common techniques of statistical analysis.
- will demonstrate the ability to communicate the results of a statistical analysis to a non-statistician both in writing and verbally, and to explain how these results pertain to the research question at hand.
- will exhibit the ability to decide on a statistical technique to apply to a given situation, demonstrate the ability to carry out that technique, either analytically or through the use of statistical software, and demonstrate the ability to assess the appropriateness of the technique that was applied.

Degree Requirements

At least **30 credit hours** of approved coursework in the program are required. At least 18 credit hours (of the 30 minimum total credits) must be at the 5500 level in the program at UMKC. Courses numbered below 400 do not carry graduate credit for mathematics and statistics graduate students. Courses numbered at the 400 level will NOT be credited to the master's degree if they were previously taken from UMKC or are equivalent (content wise) to courses previously taken from any other accredited colleges/universities for the undergraduate degree. Independent Reading courses (MATH 490 or MATH 5590 or STAT 5590) are not counted toward the degree unless approved for inclusion in the plan of study of the student prior to taking the course. Normally, more than 3 credit hours of Independent Reading will not be counted toward the master's degree.

In addition to the minimum 30 credit hours of course work, master's degree seeking students are required to attend five Graduate Seminars per semester.

Master's degree candidates are required to submit a **Master Plan of Study Form** prior to the completion of 15 credit hours of course work.

All master's degree candidates must take **six core courses** (all at the 5500 level) as follows:

Code	Title	Credits
STAT 5501	Statistical Design Of Experiments	3
STAT 5537	Mathematical Statistics I	3
STAT 5551	Applied Statistical Analysis	3
STAT 5547	Mathematical Statistics II	3
STAT 5565	Regression Analysis	3
STAT 5572	Multivariate Analysis	3

The remaining 12 credit hours can be fulfilled by choosing from the 400 or 5500 level courses offered by the program.

Students have two options for completing the degree: **with thesis** or **without thesis**. The thesis option allows students to apply up to 6 Research and Thesis (MATH 5599 or STAT 5599) credit hours towards the 12 elective credit hours. Below are the additional requirements specific to each option.

For students completing a MS degree without thesis: In the last semester before graduation, the student will make an oral presentation, under the supervision of one or two faculty members. This talk will be assessed by an advisory committee.

For students completing a MS degree with thesis: Students are required to write a Master's thesis under the supervision of a graduate faculty member, give an oral presentation, and defend it before an examining committee. The examining committee is composed of a supervisor (Chair of the examining committee) and at least two other faculty members. All members of the committee need to be graduate or doctoral faculty. The process of completing the thesis requirement is as follows:

- The student is required to submit a two-page proposal to the supervisory committee by the end of the 1st year.
- The student is required to provide a complete thesis to each of the examining committee members before the oral defense.
- Upon receipt of the recommendations from the examining committee members ("Thesis-Pre-Oral-Defense-Form" at /colleges-schools/graduate-studies/ (http://catalog.umkc.edu/colleges-schools/graduate-studies/)), the oral defense will be scheduled.
- After a successful oral defense followed by required revisions, the examining committee chair will forward the Master's thesis along with other forms ("Thesis-Final-Evaluation-form" and "Preliminary-Approval-by-Supervisory-Committee-Chair-1" found at /colleges-schools/graduate-studies/ (http://catalog.umkc.edu/colleges-schools/graduate-studies/)) to the School of Graduate Studies.

A student pursuing the thesis option can enroll in Research and Thesis credit hours (MATH 5699 or STAT 5699). Such classes will be counted towards the degree only if they are approved for the plan of study of the student prior to taking the class. No more than 6 credit hours combined of approved Research and Thesis and Independent Reading can be counted towards the degree.

Admission requirements

- Applicants need to hold a bachelors's degree from an accredited college or university, with a satisfactory GPA.
- If the applicant's degree is not in Mathematics or Statistics (or equivalent), then the applicant must have taken Calculus I, II, and III and at least three other Mathematics or Statistics classes beyond Calculus III, with satisfactory grades.
- Applicants need to include with their application materials a valid GRE general test score and a one page narrative outlining educational goals. Optional letters of recommendation should be sent directly to the department Principal Graduate Advisor.
- International applicants need to satisfy the requirements of the International Students Affairs Office (http://www.umkc.edu/isao/), including those on TOEFL or IELTS scores.

Applicants who want to apply for a GTA position in the department need to fill out the GTA application form (available on the department web site (https://cas.umkc.edu/areas-of-study/mathematics-and-statistics/graduate-student-resources.html)) and have three letters of recommendation, accompanied by the "Evaluation of fitness for graduate studies" form sent directly to the Principal Graduate Advisor.