APPLIED MATHEMATICS, MASTER OF ARTS WITH A CONCENTRATION IN DATA SCIENCE (M.A.)

Program Objectives

The objectives of the graduate mathematics program are the following:

1. To provide a graduate program in mathematics and statistics leading to a degree which prepares students for careers in government or industry.
2. To provide a graduate program in mathematics designed for certified high school teachers who wish to broaden their knowledge of the mathematics related to the field in which they teach.
3. To provide the necessary mathematical content for certified teachers to teach dual-credit courses at the secondary level or courses at a community college, two-year college, or four-year college.
4. To include in this program courses in the areas of mathematics, statistics, statistical analysis, mathematics applications, and courses demonstrating the relationships among these fields.
5. To guide students in tailoring a program of study ideally suited to their background, aptitude, and career interests.

Admission Requirements

Clear admission to graduate standing will be granted to those students who have the following:

1. Scores of 144 or higher on the Verbal Reasoning portion and 147 or higher on the Quantitative Reasoning portion of the Graduate Record Exam. Applicants with cumulative undergraduate GPA's of 3.0 or higher are exempt from the GRE requirement.
2. An undergraduate grade point average of 2.5 or higher.
3. Prerequisites for the core courses. (For example, six hours of calculus and courses in linear algebra and statistics would be sufficient.) Applicants who do not have this preparation may be granted admission without the prerequisites but are required to take the courses needed to strengthen their backgrounds. Students seeking a change in Kentucky Teacher rank must have initial certification in secondary mathematics.

Program Requirements

CIP Code: 27.0503

Applied Mathematics Program

Each student must apply 15 or more hours from 800-level courses toward the M.A. degree.

Code	Title	Hours
Core Courses		
MAT 720	Mathematical Statistics I	3
or STA 720	Mathematical Statistics I	
MAT 865	Applied Linear Algebra	3
MAT 866	Combinatorial Optimization	3
MAE 704	Tech for Teaching & Research	3
or STA 775	Statistics Methods Using SAS	
No course may be counted under both core requirements and concentration requirements.		
Concentrations		
Students must select one of the following Concentrations:		
Secondary Mathematics		
Applied Mathematics and Statistics		
Data Science		15
Exit Requirements		
MAT 898	Applied Mathematics Capstone	3
Total Hours		**30**

Concentration

Code	Title	Hours
Concentration Courses		
DSC 780	R and Introductory Data Mining	3
or STA 780	R and Introductory Data Mining	
Choose six hours from the following:		
CSC 746	Artificial Intelligence	
CSC 781	Machine Learning	
CSC 782	Big Data	
CSC 783	Data Visualization	
Electives		
Choose from six hours of advisor-approved electives selected from 700- or 800-level courses with DSC, MAE, MAT, STA, or CSC prefixes		6
Capstone		
MAT 898	Applied Mathematics Capstone	3
Total Hours		**12**

Exit Requirements

Capstone

Students are required to complete 3 hours of MAT 898 Applied Mathematics Capstone.