

# CHECK SHEET FOR THE MASTER DEGREE IN MATHEMATICS (AY 2024 - 25)

DEPARTMENT OF MATHEMATICS

University of Central Arkansas



## M.S. APPLIED MATHEMATICS (30-33 HRS)

### Core Courses (9 Hours)

COURSE NO.	COURSE	CREDIT HRS	PREREQUISITE	SEMESTER OFFERED
MATH 6342	Mathematical Modeling	3	Consent of instructor	Spring
MATH 6345	Advanced Ordinary Differential Equations	3	MATH 3331 and MATH 4362 or equivalent	Fall
MATH 6370	Numerical Analysis	3	Math 2371, MATH 3320, and CSCI 1470	Fall

### Electives (21-24 Hours)

MATH 5315	Introduction to Partial Differential Equations	3	MATH 2471, and 3331	Fall
MATH 5340	Numerical Methods	3	MATH 2341 and 3331	Spring
MATH 5362	Advanced Calculus I	3	MATH 2471	Spring (Even years)
MATH 5371	Introduction to Probability	3	MATH 1497	Fall
MATH 5372	Introduction to Statistical Inference	3	MATH 2341 and 5371	Spring
MATH 5373	Regression Analysis	3	MATH 5372 or consent of instructor	Spring
MATH 5385	Complex Analysis	3	MATH 2471	Spring
MATH 5391	Machine Learning	3	MATH 5373 or consent of instructor	Spring
MATH 5392	Time Series and Forecasting	3	MATH 5373 or consent of instructor	Spring
MATH 6357	Nonlinear Partial Differential Equations	3	MATH 4315/5315 or equivalent	Spring (Even years)
MATH 6378	Symmetry Analysis of Differential Equations	3	MATH 4315/5315	Spring (Odd years)
MATH 5316	Fundamentals of Applied Mathematics for Fluid Mechanics and Granular Materials	3	MATH 4315/5315	On Demand
MATH 5330	Mathematical Modeling in Biology	3	MATH 2341 and 3331 ( C or better in both)	On Demand
MATH 5375	Introduction to Topology I	3	Consent of instructor	On Demand
MATH 5379	Calculus of Variations	3	MATH 2471 and 3331	On Demand
MATH 6315	Introduction to Number Theory	3	Consent of instructor	On Demand
MATH 6365	Feedback Control of Differential Equations	3	MATH 3320 and 3331 or consent of instructor	On Demand
MATH 6V82	Independent Study		Consent of instructor	On Demand
MATH 6V96	Thesis (Variable credit up to six hours)		Consent of instructor	On Demand

With approval from the advisor, MS students may choose selected MA courses as electives. Common choices are listed below.

MATH 6310	Advanced Algebra for Mathematics Educators	3	Consent of instructor	Three-term rotation
MATH 6370	Advanced Calculus for Mathematics Educators	3	Consent of instructor	Three-term rotation

### Other Information

**Thesis Option:** A candidate must earn 30 hours: a minimum of 24 hours of course work and a minimum of 6 thesis hours including a minimum of 18 hours at the 6000-level. The candidate will select a thesis advisor at the time the Petition for Candidacy is submitted. At the end of the thesis hours, a candidate must produce a written thesis and present results. If a candidate who has selected the thesis option wishes to change to the non-thesis option, no credit will be granted for thesis

**Non-Thesis Option:** A candidate must earn 33 hours including a minimum of 18 hours at the 6000-level. All non-thesis option candidates for the MS degree are required to pass two comprehensive examinations in courses selected from their program of study. A non-thesis option candidate will be allowed at most two attempts at passing the comprehensive examination. If unsuccessful on the first attempt, the candidate will have to wait four months before taking it again.

**Requires a GPA of 3.0 or better to graduate**