MATHEMATICS, MS

Requirements for Students Matriculating in or before Academic Year 2024-2025. Learn more about Graduate College Academic Regulation 7.0 (http://catalog.okstate.edu/graduate-college/#70).

Thesis Option

Total Hours: 33

Applied Track Select one of the following two courses: MATH 5023 Advanced Linear Algebra MATH 5043 Advanced Calculus I Select one of the following two courses: MATH 5543 Numerical Analysis for Differential Equations MATH 5553 Numerical Analysis for Linear Algebra Select four of the following courses: MATH 4233 Intermediate Differential Equations MATH 4513 Introduction to Numerical Analysis MATH 4553 Introduction to Optimization MATH 5213 Fourier Analysis and Wavelets MATH 5233 Partial Differential Equations MATH 5243 Ordinary Differential Equations MATH 5243 Ordinary Differential Equations MATH 5543 Numerical Analysis for Differential Equations MATH 5553 Numerical Analysis for Linear Algebra MATH 5563 Finite Element Methods for Partial Differential Equations MATH 5580 Case Studies in Applied Mathematics MATH 5593 Methods of Applied Mathematics MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5013 Abstract Algebra I MATH 5013 Abstract Algebra II MATH 5003 Abstract Algebra II MATH 5043 Advanced Calculus II MATH 5043 Advanced Calculus II MATH 5003 Abstract Algebra II MATH 5043 Advanced Calculus II MATH 5045 Advanced Calculus II MATH 5046 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5045 Advanced Calculus II MATH 5056 Advanced Calculus II MATH 5065 Advanced Calculus II MATH 5066 Advanced Calculus II MATH 5067 Advanced Calculus II MATH 5068 Advanced Calculus II MATH 5078 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	Code	Title	Hours
Applied Track Select one of the following two courses: MATH 5023 Advanced Linear Algebra MATH 5043 Advanced Calculus I Select one of the following two courses: MATH 5543 Numerical Analysis for Differential Equations MATH 5553 Numerical Analysis for Linear Algebra Select four of the following courses: MATH 4233 Intermediate Differential Equations MATH 4513 Introduction to Numerical Analysis MATH 4553 Introduction to Optimization MATH 5213 Fourier Analysis and Wavelets MATH 5223 Partial Differential Equations MATH 5243 Ordinary Differential Equations MATH 5253 Advanced Ordinary Differential Equations MATH 5543 Numerical Analysis for Differential Equations MATH 5553 Numerical Analysis for Linear Algebra MATH 5563 Finite Element Methods for Partial Differential Equations MATH 5580 Case Studies in Applied Mathematics MATH 5593 Methods of Applied Mathematics MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra II MATH 5003 Abstract Algebra II MATH 5003 Abstract Algebra II MATH 5043 Advanced Calculus II MATH 5043 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra III MATH 5003 Abstract Algebra III MATH 5043 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5054 Advanced Calculus II MATH 5055 Advanced Calculus II MATH 5056 Advanced Calculus II MATH 5057 Advanced Calculus II MATH 5058 Advanced Calculus II MATH 5059 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I			
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MATH 5023 Advanced Linear Algebra MATH 5043 Advanced Calculus I Select one of the following two courses: MATH 5543 Numerical Analysis for Differential Equations MATH 5553 Numerical Analysis for Linear Algebra Select four of the following courses: MATH 4233 Intermediate Differential Equations MATH 4513 Introduction to Numerical Analysis MATH 4553 Introduction to Optimization MATH 5213 Fourier Analysis and Wavelets MATH 5223 Partial Differential Equations MATH 5243 Ordinary Differential Equations MATH 5243 Ordinary Differential Equations MATH 5543 Numerical Analysis for Differential Equations MATH 5543 Numerical Analysis for Linear Algebra MATH 5563 Finite Element Methods for Partial Differential Equations MATH 5580 Case Studies in Applied Mathematics MATH 5593 Methods of Applied Mathematics Pure Track Option 1 Required: MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II MATH 5030 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus II MATH 5053 Abstract Algebra II MATH 5053 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5054 Advanced Calculus II MATH 5055 Advanced Calculus II MATH 5050 Abstract Algebra II Select two of the following courses: MATH 5013 Real Analysis I			
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Select four of the following courses: MATH 4233 Intermediate Differential Equations MATH 4513 Introduction to Numerical Analysis MATH 4553 Introduction to Optimization MATH 5213 Fourier Analysis and Wavelets MATH 5233 Partial Differential Equations MATH 5243 Ordinary Differential Equations MATH 5253 Advanced Ordinary Differential Equations MATH 5543 Numerical Analysis for Differential Equations MATH 5543 Finite Element Methods for Partial Differential Equations MATH 5563 Finite Element Methods for Partial Differential Equations MATH 5580 Case Studies in Applied Mathematics MATH 5593 Methods of Applied Mathematics Pure Track Option 1 Required: MATH 5043 Advanced Calculus I MATH 5013 Abstract Algebra I MATH 5013 Abstract Algebra II MATH 5303 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5043 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5013 Abstract Algebra I MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5543		
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MATH 5243 Ordinary Differential Equations MATH 5253 Advanced Ordinary Differential Equations MATH 5543 Numerical Analysis for Differential Equations MATH 5553 Numerical Analysis for Linear Algebra MATH 5563 Finite Element Methods for Partial Differential Equations MATH 5580 Case Studies in Applied Mathematics MATH 5593 Methods of Applied Mathematics MATH 5593 Methods of Applied Mathematics Pure Track Option 1 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5013 Abstract Algebra II MATH 5013 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus II MATH 5053 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5213	Fourier Analysis and Wavelets	
MATH 5253 Advanced Ordinary Differential Equations MATH 5543 Numerical Analysis for Differential Equations MATH 5553 Numerical Analysis for Linear Algebra MATH 5563 Finite Element Methods for Partial Differential Equations MATH 5580 Case Studies in Applied Mathematics MATH 5593 Methods of Applied Mathematics Pure Track Option 1 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5013 Abstract Algebra II MATH 5303 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5043 Advanced Calculus II MATH 5043 Advanced Calculus II MATH 5043 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5013 Abstract Algebra II MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5233	Partial Differential Equations	
MATH 5543 Numerical Analysis for Differential Equations MATH 5553 Numerical Analysis for Linear Algebra MATH 5563 Finite Element Methods for Partial Differential Equations MATH 5580 Case Studies in Applied Mathematics MATH 5593 Methods of Applied Mathematics Pure Track Option 1 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5013 Abstract Algebra II MATH 5013 Abstract Algebra III MATH 5303 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5043 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5053 Advanced Calculus III MATH 5053 Advanced Calculus III MATH 5053 Abstract Algebra II MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5243	Ordinary Differential Equations	
Equations MATH 5553 Numerical Analysis for Linear Algebra MATH 5563 Finite Element Methods for Partial Differential Equations MATH 5580 Case Studies in Applied Mathematics MATH 5593 Methods of Applied Mathematics Pure Track Option 1 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II MATH 5303 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5253	Advanced Ordinary Differential Equations	
MATH 5563 Finite Element Methods for Partial Differential Equations MATH 5580 Case Studies in Applied Mathematics MATH 5593 Methods of Applied Mathematics Pure Track Option 1 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra II MATH 5013 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5013 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus II MATH 5053 Advanced Calculus II MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5543	· · · · · · · · · · · · · · · · · · ·	
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MATH 5593 Methods of Applied Mathematics Pure Track Option 1 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5013 Abstract Algebra I MATH 5303 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus II MATH 5053 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5563		
Pure Track Option 1 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II MATH 5303 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra I MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5580	Case Studies in Applied Mathematics	
Option 1 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II MATH 5303 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra II MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5593	Methods of Applied Mathematics	
Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II MATH 5303 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	Pure Track		
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MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II MATH 5303 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5043	Advanced Calculus I	
MATH 5013 Abstract Algebra II MATH 5303 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5053	Advanced Calculus II	
MATH 5303 General Topology MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5003	Abstract Algebra I	
MATH 4283 Complex Variables Option 2 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5013	Abstract Algebra II	
Option 2 Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5303	General Topology	
Required: MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 4283	Complex Variables	
MATH 5043 Advanced Calculus I MATH 5053 Advanced Calculus II MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	Option 2		
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MATH 5003 Abstract Algebra I MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5043	Advanced Calculus I	
MATH 5013 Abstract Algebra II Select two of the following courses: MATH 5143 Real Analysis I	MATH 5053	Advanced Calculus II	
Select two of the following courses: MATH 5143 Real Analysis I	MATH 5003	Abstract Algebra I	
MATH 5143 Real Analysis I	MATH 5013	Abstract Algebra II	
·	Select two of the fo	ollowing courses:	
MATH 5153 Real Analysis II	MATH 5143	Real Analysis I	
	MATH 5153	Real Analysis II	

MATH 5283	Complex Analysis I	
MATH 5293	Complex Analysis II	
MATH 5313	Geometric Topology	
MATH 6323	Algebraic Topology I	
MATH 5613	Algebra I	
MATH 5623	Algebra II	
Math Education Trac	k	
Required:		
MATH 5043	Advanced Calculus I	
MATH 5913	Introduction to Research in Mathematics	
	Education	
Select one of the fo	-	
MATH 4713	Number Theory	
MATH 4753	Introduction to Cryptography	
MATH 5003	Abstract Algebra I	
MATH 5013	Abstract Algebra II	
MATH 5023	Advanced Linear Algebra	
Select three of the f	following (with exactly two in one area):	
Discrete Math		
MATH 4513	Introduction to Numerical Analysis	
MATH 4553	Introduction to Optimization	
MATH 4663	Combinatorics	
MATH 5543	Numerical Analysis for Differential Equations	
MATH 5553	Numerical Analysis for Linear Algebra	
CS 4793	Artificial Intelligence I	
Geometry		
MATH 4423	Geometry and Algorithms in Three- Dimensional Modeling	
MATH 4813	Groups and Representations	
CS 4143	Computer Graphics	
Statistics		
STAT 4043	Applied Regression Analysis	
STAT 5123	Probability Theory	
STAT 5223	Statistical Inference	
STAT 5013	Statistics for Experimenters I	
STAT 5023	Statistics for Experimenters II	
STAT 5043	Sample Survey Designs	
STAT 5063	Statistical Machine Learning with R	
STAT 5303	Experimental Designs	
Hours Subtotal		18
Additional Graduate	e Courses	
Electives		
Select 9 hours of ele MATH, STAT or CS)	ectives (no more than 6 hours can be outside	9
Thesis/Report		
MATH 5000	Master's Research and Thesis	6
Hours Subtotal		15
Total Hours		33

Non-Thesis Option

Total Hours: 33

Code	Title	Hours
Core Courses		
Choose one of the	following tracks:	18
Applied Track		
Select one of the fe	ollowing two courses:	
MATH 5023	Advanced Linear Algebra	
MATH 5043	Advanced Calculus I	
Select one of the f	ollowing two courses:	
MATH 5543	Numerical Analysis for Differential Equations	
MATH 5553	Numerical Analysis for Linear Algebra	
Select four of the f	ollowing courses:	
MATH 4233	Intermediate Differential Equations	
MATH 4513	Introduction to Numerical Analysis	
MATH 4553	Introduction to Optimization	
MATH 5213	Fourier Analysis and Wavelets	
MATH 5233	Partial Differential Equations	
MATH 5243	Ordinary Differential Equations	
MATH 5253	Advanced Ordinary Differential Equations	
MATH 5543	Numerical Analysis for Differential Equations	
MATH 5553	Numerical Analysis for Linear Algebra	
MATH 5563	Finite Element Methods for Partial Differential Equations	
MATH 5580	Case Studies in Applied Mathematics	
MATH 5593	Methods of Applied Mathematics	
Pure Track		
Option 1		
Required:		
MATH 5043	Advanced Calculus I	
MATH 5053	Advanced Calculus II	
MATH 5003	Abstract Algebra I	
MATH 5013	Abstract Algebra II	
MATH 5303	General Topology	
MATH 4283	Complex Variables	
Option 2		
Required:		
MATH 5043	Advanced Calculus I	
MATH 5053	Advanced Calculus II	
MATH 5003	Abstract Algebra I	
MATH 5013	Abstract Algebra II	
Select two of the fo	•	
MATH 5143	Real Analysis I	
MATH 5153	Real Analysis II	
MATH 5283	Complex Analysis I	
MATH 5293	Complex Analysis II	
MATH 5313	Geometric Topology	
MATH 6323	Algebraic Topology I	
MATH 5613	Algebra I	
MATH 5623	Algebra II	
Math Education Tra	-	
Required:		
MATH 5043	Advanced Calculus I	

MATH 5913	Introduction to Research in Mathematics Education	
Select one of the follo	owing courses:	
MATH 4713	Number Theory	
MATH 4753	Introduction to Cryptography	
MATH 5003	Abstract Algebra I	
MATH 5013	Abstract Algebra II	
MATH 5023	Advanced Linear Algebra	
Select three of the fo	llowing (with exactly two in one area):	
Discrete Math		
MATH 4513	Introduction to Numerical Analysis	
MATH 4553	Introduction to Optimization	
MATH 4663	Combinatorics	
MATH 5543	Numerical Analysis for Differential Equations	
CS 4793	Artificial Intelligence I	
Geometry		
MATH 4423	Geometry and Algorithms in Three- Dimensional Modeling	
MATH 4813	Groups and Representations	
CS 4143	Computer Graphics	
Statistics		
STAT 4043	Applied Regression Analysis	
STAT 5123	Probability Theory	
STAT 5223	Statistical Inference	
STAT 5013	Statistics for Experimenters I	
STAT 5023	Statistics for Experimenters II	
STAT 5043	Sample Survey Designs	
STAT 5063	Statistical Machine Learning with R	
STAT 5303	Experimental Designs	
Hours Subtotal		18
Additional Graduate (Courses	
Electives		
Select 9 hours of elect MATH, STAT or CS).	ctives (no more than 6 hours can be outside	9
Thesis/Report		
MATH 5000	Master's Research and Thesis	6
Hours Subtotal		15
Total Hours		33

Graduate College Master's Program Requirements

Learn more about Graduate College 2024-2025 Master's Degree Program Requirements (http://catalog.okstate.edu/graduate-college/). Check the General Graduate College academic regulations for minimal GPA, language proficiency and other general requirements.