

# FIVE-YEAR BS MATH/MS MATH FINANCE

<http://www.math.miami.edu/>

## Overview

<https://www.msmf.miami.edu/academics/bs-msmf-program-5-year/index.html>

The BS/MSMF program is a five-year program combining the Probability/Statistics track of the Mathematics undergraduate major with the graduate coursework required for the MS in Mathematical Finance degree. For undergraduates seeking careers in the fields of economics, finance and data science, the BS/MSMF degree offers the appropriate training sought by companies worldwide. Students can achieve the required academic credentials in five years due to the integrated and focused nature of the BS/MSMF degree.

## Admission Requirements

You must be an undergraduate student in the College of Arts and Sciences majoring in Mathematics (Probability and Statistics Track), and should have a cumulative GPA of at least 3.0 at the time of application. Students should discuss the program and the possibility of entering with their assigned academic advisor. Applications must be submitted during your junior year. You must be admitted to the program prior to academic advising for your senior year.

## Curriculum Requirements

Code	Title	Credit Hours
<b>BS IN MATH REQUIREMENTS</b>		<b>120</b>
<b>Required Major Courses (23 credit hours)</b>		
MTH 161 or MTH 171	Calculus I	
MTH 162 or MTH 172	Calculus II	
MTH 210	Introduction to Linear Algebra	
MTH 230	Introduction to Abstract Mathematics	
MTH 310	Multivariable Calculus	
MTH 461 & MTH 561	Survey of Modern Algebra and Abstract Algebra I	
MTH 433 or MTH 533	Advanced Calculus Introduction to Real Analysis I	
<b>Probability and Statistics Track (12 credit hours)</b>		
MTH 224	Introduction to Probability and Statistics	
MTH 524 & MTH 525	Introduction to Probability and Introduction to Mathematical Statistics	
MTH 542	Statistical Analysis	
<b>Other Requirements (85 credit hours)</b>		
MTH 547	Introduction to Mathematical Finance	
University and School/College Specific General Education Requirements and Electives <sup>1, 2, 3</sup>		
<b>MSMF REQUIREMENTS</b>		<b>30</b>
FIN 650	Financial Investment	
FIN 651	Advanced Topics in Investments	
FIN 653	Alternative Investments	
MTH 613	Partial Differential Equations I	
MTH 643	Statistical Analysis II with Financial Applications	
MTH 645	Optimization Methods	
MTH 648	Stochastic Calculus with Application to Finance	
MTH 649	Computational Methods of Finance	
MTH/CSC Elective		
Master's Thesis/Project		
<b>Total Credit Hours</b>		<b>150</b>

## Sample Plan of Study

<b>Freshman Year</b>			
<b>Fall</b>			<b>Credit Hours</b>
MTH 161	Calculus I		4
WRS 105	First-Year Writing I		3
Other			9
		<b>Credit Hours</b>	<b>16</b>
<b>Spring</b>			
MTH 162	Calculus II		4
WRS 106, 107, or ENG 106	First-Year Writing II or First-Year Writing II: STEM or Writing About Literature and Culture		3
Other			9
		<b>Credit Hours</b>	<b>16</b>
<b>Sophomore Year</b>			
<b>Fall</b>			
MTH 210	Introduction to Linear Algebra		3
MTH 224	Introduction to Probability and Statistics		3
Other			9
		<b>Credit Hours</b>	<b>15</b>
<b>Spring</b>			
MTH 230	Introduction to Abstract Mathematics		3
MTH 310	Multivariable Calculus		3
Other			9
		<b>Credit Hours</b>	<b>15</b>
<b>Junior Year</b>			
<b>Fall</b>			
MTH 542	Statistical Analysis		3
MTH 433	Advanced Calculus		3
Other			9
		<b>Credit Hours</b>	<b>15</b>
<b>Spring</b>			
MTH 311	Introduction to Ordinary Differential Equations		3
MTH 461	Survey of Modern Algebra		3
Other			9
		<b>Credit Hours</b>	<b>15</b>
<b>Senior Year</b>			
<b>Fall</b>			
MTH 524	Introduction to Probability		3
MTH 547	Introduction to Mathematical Finance		3
Other			9
		<b>Credit Hours</b>	<b>15</b>
<b>Spring</b>			
MTH 525	Introduction to Mathematical Statistics		3
MTH 320	Introduction to Numerical Analysis ( recommended)		3
Other			7
		<b>Credit Hours</b>	<b>13</b>
<b>Fifth Year (Graduate)</b>			
<b>Fall</b>			
MTH 645	Optimization Methods		3
MTH 649	Computational Methods of Finance		3
MTH 613	Partial Differential Equations I		3

FIN 650	Financial Investment	2
	<b>Credit Hours</b>	<b>11</b>
<b>Spring</b>		
MTH 643	Statistical Analysis II with Financial Applications	3
MTH 648	Stochastic Calculus with Application to Finance	3
FIN 651	Advanced Topics in Investments	2
FIN 653	Alternative Investments ( or other Finance elective)	2
MTH/CSC elective		3
	<b>Credit Hours</b>	<b>13</b>
<b>Summer</b>		
MSMF Thesis/Project		6
	<b>Credit Hours</b>	<b>6</b>
	<b>Total Credit Hours</b>	<b>150</b>