Applied Mathematics (MS)

Degree Requirements

Code	Title	Hours
Required Courses [1]		**30**
See "Required Courses" listed below		
MA 676	Master's Project (Optional)	
In Depth Courses		
See "In Depth Course Sequences" listed below		
Total Hours		**30**

[1] At least 18 credits must be MA courses level (500+)
[2] Up to 9 credits may be in math related disciplines, determined in conjunction with the academic committee

Required Courses

Code	Title	Hours
Select at least one course from each category below:		
Continuous Mathematics		
MA 513	Introduction To Complex Variables	3
MA 515	Analysis I	3
MA 531	Dynamic Systems and Multivariable Control I	3
MA 532	Ordinary Differential Equations I	3
MA 534	Introduction To Partial Differential Equations	3
MA 546	Probability and Stochastic Processes I	3
MA 551	Introduction to Topology	3
MA 555	Introduction to Manifold Theory	3
Discrete Mathematics		
MA 505	Linear Programming	3
MA 520	Linear Algebra	3
MA 521	Abstract Algebra I	3
MA 523	Linear Transformations and Matrix Theory	3
MA 524	Combinatorics I	3
MA 526	Mathematical Analysis II	3
Computational Mathematics		
MA 522	Computer Algebra	3
MA 540	Uncertainty Quantification for Physical and Biological Models	3
MA/CS 565	Graph Theory	3
MA 573	Mathematical Modeling of Physical and Biological Processes I	3
MA 580	Numerical Analysis I	3

In Depth Course Sequences

Code	Title	Hours
Select two course sequences or three related courses from the categories below:		
Analysis Course Sequence		
MA 515	Analysis I	3
MA 715	Nonlinear Analysis	3
Linear & Lie Algebra Course Sequence		
MA 520	Linear Algebra	3
MA 720	Lie Algebras	3
Abstract Algebra Course Sequence		
MA 521	Abstract Algebra I	3
MA 721	Abstract Algebra II	3
Computer Algebra Course Sequence		
MA 522	Computer Algebra	3
MA 722	Computer Algebra II	3
Matrix Theory Course Sequence		
MA 523	Linear Transformations and Matrix Theory	3
MA 723	Theory of Matrices and Applications	3
Combinatorics Course Sequence		
MA 524	Combinatorics I	3
MA 724	Combinatorics II	3
Control Course Sequence		
MA 531	Dynamic Systems and Multivariable Control I	3
MA 731	Dynamic Systems and Multivariable Control II	3
PDEs Course Sequence		
MA 534	Introduction To Partial Differential Equations	3
MA 734	Partial Differential Equations	3
Probability Course Sequence		
MA 546	Probability and Stochastic Processes I	3
MA 747	Probability and Stochastic Processes II	3
Topology Course Sequence		
MA 551	Introduction to Topology	3
MA 753	Algebraic Topology	3
Differential Geometry Course Sequence		
MA 555	Introduction to Manifold Theory	3
MA 755	Introduction to Riemannian Geometry	3
Modeling Course Sequence		
MA 573	Mathematical Modeling of Physical and Biological Processes I	3
MA 574	Mathematical Modeling of Physical and Biological Processes II	3
Numerical Analysis Course Sequence		
MA 580	Numerical Analysis I	3
MA 780	Numerical Analysis I	3
Other		
Three related courses approved in conjunction with the academic committee		9

Accelerated Bachelor's/Master's Degree Requirements

The Accelerated Bachelors/Master's (ABM) degree program allows exceptional undergraduate students at NC State an opportunity to complete the requirements for both the Bachelor's and Master's degrees at an accelerated pace. These undergraduate students may double count up to 12 credits and obtain a non-thesis Master's degree in the same field within 12 months of completing the Bachelor's degree, or obtain a thesis-based Master's degree in the same field within 18 months of completing the Bachelor's degree.

This degree program also provides an opportunity for the Directors of Graduate Programs (DGPs) at NC State to recruit rising juniors in their major to their graduate programs. However, permission to pursue an ABM degree program does not guarantee admission to the Graduate School. Admission is contingent on meeting eligibility requirements at the time of entering the graduate program.

Faculty

Full Professors

Bojko Nentchev Bakalov

Lorena Bociu

Alina Emil Chertock

Moody Ten-Chao Chu

Patrick Louis Combettes

Pierre Alain Gremaud

Mansoor Abbas Haider

Hoon Hong

Ilse Ipsen

Kazufumi Ito

Naihuan Jing

Erich L. Kaltofen

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Mette Olufsen

Tao Pang

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Jesus Rodriguez

Ralph Conover Smith

Seth M. Sullivant

Hien Trong Tran

Semyon Victor Tsynkov

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Min Jeong Kang

Tye Lidman

Tien Khai Nguyen

Andrew Papanicolaou

David Papp

Arvind Krishna Saibaba

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Assistant Professors

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Yairon Cid Ruiz

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Mohammad Mehdi Farazmand

Hangjie Ji

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Zane Kun Li

Andrew Jason Manion

Jacob Paul Matherne

Peter McGrath

Ryan William Murray

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Andrew O'Shea Sageman-Furnas

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Yeonjong Shin

Fatma Terzioglu

Adjunct Faculty

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Jonathan D. Hauenstein

Patricia L. Hersh

John Lavery

Sarah Katherine Mason

Jordan E. Massad

Jessica Loock Matthews

Johnny T. Ottesen

Practice/Research/Teaching Professors

Elisabeth M. M. Brown

Luke Castle

Alina Nicoleta Duca

Molly A. Fenn

Mikhail Gilman

Maitreyee Kulkarni

Bevin Laurel Maultsby

Stepan Paul

Faye Simon

Emeritus Faculty

John William Bishir

Stephen LaVern Campbell

Richard E. Chandler

H. Charlton

Ethelbert N. Chukwu

Lung-ock Chung

Jo-Ann D. Cohen

Joseph C. Dunn

Gary Doyle Faulkner

John E. Franke

Ronald O. Fulp

Dennis E. Garoutte

John Richard Griggs

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Aloysius G. Helminck

Robert H. Martin Jr

Carl Meyer Jr.

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Thomas J. Lada

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Jeffrey Scott Scroggs

James Francis Selgrade

Michael Shearer

C. Siewert

Robert Silber

Jack Silverstein

Michael F. Singer

Ernest Stitzinger

R. White