# Mathematics (MS)

## Master of Science Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Required Courses</strong></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Select one course from each of the following categories:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Continuous Mathematics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 513</td>
<td>Introduction To Complex Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 515</td>
<td>Analysis I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 531</td>
<td>Dynamic Systems and Multivariable Control I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 532</td>
<td>Ordinary Differential Equations I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 534</td>
<td>Introduction To Partial Differential Equations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 546</td>
<td>Probability and Stochastic Processes I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 551</td>
<td>Introduction to Topology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 555</td>
<td>Introduction to Manifold Theory</td>
<td></td>
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</tbody>
</table>

### Discrete Mathematics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 505</td>
<td>Linear Programming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 520</td>
<td>Linear Algebra</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 521</td>
<td>Abstract Algebra I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 523</td>
<td>Linear Transformations and Matrix Theory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 524</td>
<td>Combinatorics I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 526</td>
<td>Mathematical Analysis II</td>
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</tbody>
</table>

### Computational Mathematics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 522</td>
<td>Computer Algebra</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 540</td>
<td>Uncertainty Quantification for Physical and Biological Models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 565</td>
<td>Graph Theory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 573</td>
<td>Mathematical Modeling of Physical and Biological Processes I</td>
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<td></td>
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</tbody>
</table>

### In Depth Requirement Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA 580</td>
<td>In Depth Requirement Courses</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Select two course sequences, or one group of three thematically linked courses, approved in conjunction with the academic committee.

### Additional Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Additional Courses</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

“Additional Courses” are approved in conjunction with the academic committee to meet 30 total hours.

## Total Hours

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Total Hours</strong></td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

### Accelerated Bachelor's/Master's Degree Requirements

The Accelerated Bachelor's/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
- Alina Emil Chertock
- Moody Ten-Chao Chu
- Jo-Ann D. Cohen
- Patrick Louis Combettes
- Pierre Alain Gremaud
- Mansoor Abbas Haider
- Hoon Hong
- Ilse Ipsen
- Kazufumi Ito
- Naihuan Jing
- Erich L. Kaltofen
- Carl Timothy Kelley
- Arkady Kheyfets
- Irina Aleksandrovna Kogan
Zhilin Li
Xiao-Biao Lin
Alun L. Lloyd
Sharon R. Lubkin
Negash G. Medhin
Kailash Chandra Misra
Mette Olufsen
Tao Pang
Nathan P. Reading
Jesus Rodriguez
Michael Shearer
Ralph Conover Smith
Ernest Lester Stitzinger
Seth M. Sullivant
Agnes Szanto
Hien Trong Tran
Semyon Victor Tsynkov
Dmitry Valerievich Zenkov

Associate Professors
Lorena Viorica Bociu
Mikhail Gilman
Min Jeong Kang
Ricky Ini Liu
Arvind Krishna Saibaba
David Papp
Cynthia Leslie Vinzant

Assistant Professors
Martin Helmer
Alen Alexanderian
Erik Walter Bates
Chao Chen
Mohammad Mehdi Farazmand
Kevin Bryant Flores
P. Ivanisvili
C. Jones
Yerkin Kitapbayev
Zane Kun Li
Tye Lidman
Jacob Paul Matherne
P. McGrath
Ryan William Murray
Tien Khai Nguyen
Dominykas Norgilas
A. Papanicolaou
Yairon Cid Ruiz
T. Saksala
Radmila Sazdanovic
Yeonjong Shin

Practice/Research/Teaching Professors
Elisabeth M. M. Brown
L. Castle
Alina Nicoleta Duca
Molly A. Fenn
Bevin Laurel Maultsby
S. Paul
Brenda B. Williams

Emeritus Faculty
John William Bishir
Stephen LaVern Campbell
Richard E. Chandler
H. Charlton
Ethelbert N. Chukwu
Lung-ock Chung
Joseph C. Dunn
Gary Doyle Faulkner
John E. Franke
Ronald O. Fulp
Dennis E. Garoutte
Robert E. Hartwig
Aloysius G. Helminck
Robert H. Martin Jr.
Thomas J. Lada
Joe A. Marlin
Carl Meyer Jr.
Larry Keith Norris
Sandra Paur
Lavon Barry Page
E. Peterson
Mohan Sastri Putcha
N. Rose
Stephen Schecter
Jeffrey Scott Scroggs
James Francis Selgrade
C. Siewert
Robert Silber
Jack William Silverstein
Michael F. Singer
R. White

Adjunct Faculty
Scott Christopher Batson
Jonathan David Hauenstein
Patricia L. Hersh
John Lavery
Sarah Katherine Mason
Jordan E. Massad
Jessica Looock Matthews
J. Ottesen