Applied Mathematics (PhD)

**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></td>
</tr>
<tr>
<td></td>
<td><em>Must contain a minimum of 30 credit hours of 500-level or above MA courses</em></td>
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<tr>
<td></td>
<td><strong>Total Hours</strong></td>
<td>72</td>
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</tr>
</tbody>
</table>

**Required Courses**

Select at least one course from each category below:

### 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>3</td>
<td></td>
</tr>
<tr>
<td>MA 515</td>
<td>Analysis I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MA 531</td>
<td>Dynamic Systems and Multivariable Control I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MA 532</td>
<td>Ordinary Differential Equations I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MA 534</td>
<td>Introduction To Partial Differential Equations</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MA 546</td>
<td>Probability and Stochastic Processes I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MA 551</td>
<td>Introduction to Topology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MA 555</td>
<td>Introduction to Manifold Theory</td>
<td>3</td>
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### Discrete Mathematics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
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<tbody>
<tr>
<td>MA 505</td>
<td>Linear Programming</td>
<td>3</td>
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</tr>
<tr>
<td>MA 520</td>
<td>Linear Algebra</td>
<td>3</td>
<td></td>
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<tr>
<td>MA 521</td>
<td>Abstract Algebra I</td>
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<tr>
<td>MA 523</td>
<td>Linear Transformations and Matrix Theory</td>
<td>3</td>
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<tr>
<td>MA 524</td>
<td>Combinatorics I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MA 526</td>
<td>Mathematical Analysis II</td>
<td>3</td>
<td></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>3</td>
<td></td>
</tr>
<tr>
<td>MA 540</td>
<td>Uncertainty Quantification for Physical and Biological Models</td>
<td>3</td>
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<tr>
<td>MA/CS 565</td>
<td>Graph Theory</td>
<td>3</td>
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<tr>
<td>MA 573</td>
<td>Mathematical Modeling of Physical and Biological Processes I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MA 580</td>
<td></td>
<td>3</td>
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</tr>
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</table>

**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
- Rachel Levy
- 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 Rodríguez
Michael Shearer
Jack William Silverstein
Ralph Conover Smith
Ernest Lester Sitzinger
Seth M. Sullivant
Agnes Szanto
Hien Trong Tran
Semyon Victor Tsynkov
Dmitry Valerievich Zenkov

**Associate Professors**
Lorena Viorica Bociu
Min Jeong Kang
Ricky Ini Liu
Larry Keith Norris
David Papp
Arvind Krishna Saibaba
Cynthia Leslie Vinzant

**Assistant Professors**
Alen Alexanderian
Zixuan Cang
Mohammad Mehdi Farazmand
Kevin Bryant Flores
Laura Colmenarejo Hernando
P. Ivanisvili
Hangjie Ji
C. Jones
Yerkin Kitapbayev
Tye Lidman
Andrew Jason Manion
P. McGrath
Ryan William Murray
Tien Khai Nguyen
A. Papanicolaou
Andrew O'Shea Sageman-Furnas
T. Saksala
Radmila Sazdanovic
Fatma Terzioglu

**Adjunct Faculty**
Scott Christopher Batson
Jonathan D. Hauenstein
Patricia L. Hersh
John Lavery
Jordan E. Massad
Jessica Loock Matthews
Johnny T. Ottesen

**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
John Richard Griggs
Robert E. Hartwig