**Mathematics (PhD): Interdisciplinary Mathematics Concentration**

### 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></td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

**Required Courses**

See “Required Courses by Category” listed below.

**Additional Courses**

1. 2

“Additional Courses” are approved in conjunction with the academic committee to meet 72 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></td>
<td>63</td>
<td></td>
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</tbody>
</table>

Total Hours: 72

1. At least 30 credit hours of MA coursework must be at the graded 500- and 700-level.

2. At least two courses should be from another discipline. One of these courses may be cross-listed with MA.

### Required Coursework by Category

Select one course from each of the following categories:

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

**Discrete Mathematics**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
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</thead>
<tbody>
<tr>
<td>MA 505</td>
<td>Linear Programming</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MA 520</td>
<td>Linear Algebra</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>
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</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>
<td></td>
</tr>
<tr>
<td>MA 565</td>
<td>Graph Theory</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MA 573</td>
<td>Mathematical Modeling of Physical and Biological Processes I</td>
<td>3</td>
<td></td>
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<tr>
<td>MA 580</td>
<td></td>
<td>3</td>
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</tbody>
</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
- 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
Jack William Silverstein
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
Min Jeong Kang
Ricky Ini Liu
Arvind Krishna Saibaba
David Papp
Cynthia Leslie Vinzant

Assistant Professors
Alen Alexanderian
Mohammad Mehdi Farazmand
Kevin Bryant Flores
P. Ivanisvili
C. Jones
Yerkin Kitapbayev
Tye Lidman
P. McGrath
Ryan William Murray
Tien Khai Nguyen
A. Papanicolaou

T. Saksala
Radmila Sazdanovic

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
Michael F. Singer
R. White

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