

# Mathematics (Minor)

## Plan Requirements

### Master's Minor

Code	Title	Hours
<b>Required Courses</b>		9
Select at least three Graduate-level MA courses approved in conjunction with the academic committee <sup>1, 2</sup>		
Total Hours		9

### PhD Minor

Code	Title	Hours
<b>Required Courses</b>		12
Select any 500- or 700-level MA course approved in conjunction with the academic committee <sup>1</sup>		
Total Hours		12

<sup>1</sup> Student must maintain an average 3.0 GPA for courses to count toward a Mathematics minor.

<sup>2</sup> At least six credit hours must be taken at the letter graded 500- or 700-level.

## Graduate Mathematics Courses

Code	Title	Hours
MA 501	Advanced Mathematics for Engineers and Scientists I	3
MA 502	Advanced Mathematics for Engineers and Scientists II	3
MA 504	Introduction to Mathematical Programming	3
MA 505	Linear Programming	3
MA 507	Survey of Real Analysis	3
MA 508	Geometry For Secondary Teachers	3
MA 509	Survey of Abstract Algebra	3
MA 510	Selected Topics In Mathematics For Secondary Teachers	1-6
MA 511	Advanced Calculus I	3
MA 512	Advanced Calculus II	3
MA 513	Introduction To Complex Variables	3
MA 514	Foundations of Cryptography	3
MA 515	Analysis I	3
MA 518	Geometry of Curves and Surfaces	3
MA 520	Linear Algebra	3
MA 521	Abstract Algebra I	3
MA 522	Computer Algebra	3
MA 523	Linear Transformations and Matrix Theory	3
MA 524	Combinatorics I	3
MA 526	Algebraic Geometry	3
MA 528	Options and Derivatives Pricing	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 537	Nonlinear Dynamics and Chaos	3
MA 540	Uncertainty Quantification for Physical and Biological Models	3
MA 544	Computer Experiments In Mathematical Probability	3
MA 546	Probability and Stochastic Processes I	3
MA 547	Financial Mathematics	3
MA 548	Monte Carlo Methods for Financial Math	3
MA 549	Financial Risk Analysis	3
MA 551	Introduction to Topology	3
MA 555	Introduction to Manifold Theory	3
MA 561	Set Theory and Foundations Of Mathematics	3
MA 565	Graph Theory	3
MA 573	Mathematical Modeling of Physical and Biological Processes I	3
MA 574	Mathematical Modeling of Physical and Biological Processes II	3
MA 580	Numerical Analysis I	3
MA 583	Introduction to Parallel Computing	3
MA 584	Numerical Solution of Partial Differential Equations--Finite Difference Methods	3
MA 587	Numerical Solution of Partial Differential Equations--Finite Element Method	3
MA 591	Special Topics	1-6
MA 685	Master's Supervised Teaching	1-3
MA 706	Nonlinear Programming	3
MA 708	Integer Programming	3
MA 715	Analysis II	3
MA 716	Advanced Functional Analysis	3
MA 719	Vector Space Methods in System Optimization	3
MA 720	Lie Algebras	3
MA 721	Abstract Algebra II	3
MA 722	Computer Algebra II	3
MA 723	Theory of Matrices and Applications	3
MA 724	Combinatorics II	3
MA 725	Lie Algebra Representation Theory	3
MA 731	Dynamic Systems and Multivariable Control II	3
MA 732	Ordinary Differential Equations II	3
MA 734	Partial Differential Equations	3
MA 746	Introduction To Stochastic Processes	3
MA 747	Probability and Stochastic Processes II	3
MA 748	Stochastic Differential Equations	3
MA 753	Algebraic Topology	3
MA 755	Introduction to Riemannian Geometry	3
MA 766	Network Flows	3
MA 771	Biomathematics I	3
MA 772	Biomathematics II	3
MA 773	Stochastic Modeling	3
MA 774	Partial Differential Equation Modeling in Biology	3
MA 780	Numerical Analysis II	3
MA 784	Nonlinear Equations and Unconstrained Optimization	3

MA 785	Numerical Solution of Ordinary Differential Equations	3
MA 788	Numerical Nonlinear Partial Differential Equations	3
MA 790	Advanced Special Topics System Optimization	1-6
MA 791	Special Topics In Real Analysis	1-6
MA 792	Special Topics In Algebra	1-6
MA 793	Special Topics In Differential Equations	1-6
MA 796	Special Topics In Combinatorial Analysis	1-6
MA 797	Special Topics In Applied Mathematics	1-6
MA 798	Special Topics In Numerical Analysis	1-6
MA 810	Special Topics	1-6
MA 812	Special Topics in Mathematical Programming	1-6
MA 816	Advanced Special Topics Sys Opt	1-6

## 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

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### Associate Professors

Lorena Viorica Bociu

Min Jeong Kang

Ricky Ini Liu

Arvind Krishna Saibaba

David Papp

Cynthia Leslie Vinzant

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### 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

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### Practice/Research/Teaching Professors

Elisabeth M. M. Brown

L. Castle

Alina Nicoleta Duca  
Molly A. Fenn  
Bevin Laurel Maultsby  
S. Paul  
Brenda B. Williams

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## **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

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## **Adjunct Faculty**

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