

Applied Mathematics (PhD): Computational Mathematics Concentration

Code	Title	Hours	Counts towards
Required Courses *		63	
See "Required Courses" listed below			
Computational Mathematics Concentration Requirements		9	
See "Computational Mathematics Concentration Courses" listed below			
Total Hours		72	

* Must contain a minimum of 30 credit hours of 500-level or above MA courses.

Required Courses

Code	Title	Hours	Counts towards
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 3

Computational Mathematics Concentration Courses

Code	Title	Hours	Counts towards
Select at least three courses from the following:			
MA 522	Computer Algebra	3	
MA 540	Uncertainty Quantification for Physical and Biological Models	3	
MA 544	Computer Experiments In Mathematical Probability	3	
MA 565	Graph Theory	3	
MA 573	Mathematical Modeling of Physical and Biological Processes I	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 784	Nonlinear Equations and Unconstrained Optimization	3	

MA 788	Numerical Nonlinear Partial Differential Equations	3	Irina Aleksandrovna Kogan
CSC 501	Operating Systems Principles	3	Rachel Levy
CSC 505	Design and Analysis Of Algorithms	3	Zhilin Li
CSC 506	Architecture Of Parallel Computers	3	Xiao-Biao Lin
CE 537	Computer Methods and Applications	3	Alun L. Lloyd
CSC 512	Compiler Construction	3	Sharon R. Lubkin
PY 525	Computational Physics	3	Negash G. Medhin
ECE 513	Digital Signal Processing	3	Kailash Chandra Misra
MAE 560	Computational Fluid Mechanics and Heat Transfer	3	Mette Olufsen
ST 555	Statistical Programming I	3	Tao Pang
FIM 548	Monte Carlo Methods for Financial Math	3	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

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

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
 Aloysius G. Helminck
 Robert H. Martin Jr
 Carl Meyer Jr.
 Thomas J. Lada
 Joe A. Marlin
 Larry Keith Norris
 L. Page
 Sandra Paur
 E. Peterson
 Mohan Sastri Putcha
 N. Rose
 Stephen Schecter
 Jeffrey Scott Scroggs
 James Francis Selgrade
 C. Siewert
 Robert Silber
 Michael F. Singer
 R. White