

Graduate Program for Mathematics

School	School of Mathematical Sciences	Student Type	PhD & Master
Discipline	Mathematics	Discipline Code	070100
Applicable Grade	Grade <u>2014</u>	Revised Time	<u>2014</u> Year <u>04</u> Month
Subject included	Fundamental Mathematics (070101); Computational Mathematics (070102); Probability Theory & Mathematical Statistic(070103); Applied Mathematics(070104); Operational Research and Cybernetics (070105)		
Length of Study	Master <u>3</u> years; PhD <u>4</u> years		
Credit Requirements	Master <u>22</u> credits: <u>20</u> credits for courses, <u>2</u> credits for other academic sections.		
	PhD <u>12</u> credits: <u>10</u> credits for courses, <u>2</u> credits for other academic sections.		
Program Objectives	<p>The program is designed to provide training and research activities in a broad spectrum of pure mathematics and applied mathematics. And the aim of the program is to offer students a guide to broaden their basic and specialized knowledge in several fields of mathematics and its application by providing further courses and training activities at the upper-division and the beginning graduate levels. At the same time, it would help students to get the abilities of grasping analytical and critical thinking to solve problems by applying knowledge, methods and skills in mathematics. We also hope that it will guide students towards research at the forefront of modern mathematics and to get outstanding achievements.</p>		
Requirements of Research Ability and Other Aspects	<p>In outline, to qualify the Master and PhD degree, the candidates must meet the following requirements:</p> <ol style="list-style-type: none"> 1. Competence of a foreign language; 2. Mathematical background of high level mathematical knowledge; 3. Understanding of thought, methods and skills of modern mathematics; 4. Abilities of analyzing and resolving problems with mathematical methods; 5. Be familiar with the forefront of modern mathematics. 		

And PhD candidates also need to meet one of the following conditions:

1. Two or more papers of high quality (In SCI or EI indexed journals) should be published or accepted; or
2. One of high quality paper has been published or accepted in JCR2 or higher lever journal; or
3. One of high quality paper has been published or accepted in “Mathematical

	080020011	Advanced Numerical Analysis	3	FA			Compulsory for CM masters
	080020012	Stochastic Processes	3	SP			Compulsory for PT&MS masters
	080020013	Operational Research and Optimization	3	SP			Compulsory for AM & ORC masters
Optional Courses	080030014	Finite group theory	2	FA			
	080030015	Character theory of finite groups	2	FA			
	080030016	Modular representation of group theory	2	SP			
	080030017	Approximation Theory	2	FA			
	080030018	Approximation of Operators of Probabilistic Type	2	SP			
	080030019	Computational Geometry	2	FA			
	080030020	Geometric Nonlinear Analysis	2	FA			
	080030021	Convex Analysis and Geometry of Infinite Dimensions	2	FA			
	080030022	Topology	2	FA			
	080030023	Dynamical System	2	SP			
	080030024	Triangulated and derived categories	2	FA			
	080030025	Representation theory of finite dimensional algebras	2	SP			
	080030026	Nonlinear Analysis and Semilinear Elliptic Equations	2	FA			
	080030027	Critical Point Theory and Variational Methods	2	SP			
	080030028	The structure theory of Kac-Moody Lie algebras	2	FA			
	080030029	The representations of Kac-Moody Lie algebras	2	SP			
	080030030	Vertex operator algebras and their representations	2	SP			
	080030031	Theory of Singular Integrals	2	FA			
	080030032	Fourier analysis	2	SP			
	080030033	Theory of Function Spaces	2	FA			
	080030034	Several Complex Variables	2	FA			
	080030035	Complex Geometry	2	FA			
	080030036	Complex Finsler Geometry	2	SP			
	080030037	Integral Representation Theory in Several Complex Variables	2	SP			
080030038	Hyperbolic partial	2	FA				

		differential equations					
080030039		Calculus of Variations	2	SP			
080030040		Cryptography---Theory and Practice	2	FA			
080030041		Finite fields and its application	2	FA			
080030042		Mathematic basis for Information Safty	2	SP			
080030043		Computational fluids dynamics	2	SP			
080030044		High-order numerical methods	2	FA			
080030045		Applied Numerical Algebra	2	FA			
080030046		Matrix Computations and Differential Manifolds	2	FA			
080030047		Curves and Surfaces Modeling	2	SP			
080030048		Financial Time Series Analysis	2	FA			
080030049		Mathematical Finance	2	FA			
080030050		Nonparametric and Semiparametric Models	2	FA			
080030051		Generalized Latent Variable Models	2	SP			
080030052		Applied Stochastic Processes	2	SP			
080030053		Modern Actuarial Risk Theory	2	FA			
080030054		Quantitative Risk Management	2	SP			
080030055		Introduction to Mathematic Finance	2	FA			
080030056		Finanical Engineering: theory and applications	2	SP			
080030057		Advance non-life actuarial science: Statistical Methods and Insurance Data Analysis	2	SP			
080030058		Linear Models	2	FA			
080030059		Multivariate Analysis	2	FA			
080030060		Bayesian Analysis	2	SP			
080030061		statistical computing	2	SP			
080030062		Modern Graph Theory	2	FA			
080030063		Algebraic Combinatorics	2	FA			
080030064		Stochastic Partial Differential Equations	2	SP			
080030065		Algorithm Design and Analysis	2	FA			
080030066		Nonsmooth Optimization	2	SP			
080030067		Convex Analysis	2	FA			
080030068		Combinatorial Optimization	2	SP			

	080030069	Computational Complexity	2	SP			
	080030070	Electromagnetics	2	SP			
	080030071	Introduction to Parallel Computing	2	FA			
	080020072	Scientific Computing	2	SP			
	080020073	Continuum Mechanics	2	FA			
	080020074	Special report	2	SP			
	080020075	Selected papers	2	SP			
Other Requirements	Courses completed during master studies can be exempted in the doctoral studies. Detailed requirements are formulated by different disciplines.						
Other academic sections (C-Compulsory; O-Optional)							
Category	C or not	Credit	Requirements			Evaluation (Ways and time)	
Academic Lectures	C for all Graduates	1	All PhD. And postgraduates should attend at least 30 academic reports before graduate. We suggest each PhD. To give a academic report independently.			At last term, students hand their report records to graduate assistant. If they meet the requirement, they will get the credit.	
Mid-term Examination	C for PhD	1	The mid-term exam is a written exam which consists of 2 core courses chosen form 13 required core courses. Students should pass the exam within 24 months of the date of entry into the PhD program.			The Mid-term Examination is offered twice a year---during the week before classes finish in both the Fall and Spring Semesters. It' s 1credit.	
Literature Review and Research Report							
Thesis Proposal							
Internship							
Teaching Practice	C for all Graduates	1	Postgraduate should take charge of teaching assistant at least for two semesters. PhD should take charge of teaching assistant at least for a semesters			The students will get 1credit if they reach the requirement at fifth semester.	
External Studies and Exchange Experience							
Thesis	Basic requirements for thesis (e.g., academic quality of the thesis)						

