

Ph.D. in Applied Mathematics Degree Requirements

Directed Research Requirements	Ph.D. Dissertation Requirements	Coursework Requirements	Total (Cr)
27	15	18	60
45%	25%	30%	100%

1. Directed Research Requirements

Directed Research Requirements (27 Cr)					
Course Code	Course Title	Cr	L	P	Prerequisite
MATH 781	Ph.D. Directed Research 1	3	0	9	
MATH 782	Ph.D. Directed Research 2	3	0	9	
MATH 783	Ph.D. Directed Research 3	3	0	9	
MATH 784	Ph.D. Directed Research 4	3	0	9	
MATH 785	Ph.D. Directed Research 5	3	0	9	
MATH 786	Ph.D. Directed Research 6	3	0	9	
MATH 787	Ph.D. Directed Research 7	3	0	9	
MATH 788	Ph.D. Directed Research 8	3	0	9	
MATH 789	Ph.D. Directed Research 9	3	0	9	

2. Ph.D. Dissertation Requirements

Ph.D. Dissertation Requirements (15 Cr)					
Course Code	Course Title	Cr	L	P	Prerequisite
MATH 795	Ph.D. Dissertation 1	3	0	9	
MATH 796	Ph.D. Dissertation 2	3	0	9	
MATH 797	Ph.D. Dissertation 3	3	0	9	
MATH 798	Ph.D. Dissertation 4	3	0	9	
MATH 799	Ph.D. Dissertation 5	3	0	9	

3. Coursework Requirements

The aim of coursework requirements is to provide students in the Ph.D. program in Applied Mathematics with special advanced knowledge essential for completion of doctoral research. PhD candidates have to take at least four courses from the 700-level courses in the Course Catalog. Students have to take an additional two courses; these two courses may be taken from the set of 700-level courses in the Course Catalog or may be taken from 600-level courses offered in the M.Sc. program in Applied Mathematics. Ph.D. candidates may not register for 600-level courses that they have taken during the course of previous studies before being admitted to the Ph.D. program.

Coursework Requirements (18 Cr)					
Course Code	Course Title	Cr	L	P	Prerequisite
600-Level or 700-Level MATH Electives		6	6	0	
700-Level MATH Electives		12	12	0	

1. Applied mathematics electives

The student must select a minimum of 18 Cr from the following list At least four courses must be from the 700-level courses					
Course Code	Course Title	Cr	L	P	Prerequisite
MATH 602	Introduction to Optimization	3	3	0	
MATH 604	Advanced Complex Analysis	3	3	0	
MATH 605	Regression Analysis	3	3	0	
MATH 606	Convex Optimization	3	3	0	MATH 602 (Introduction to Optimization)
MATH 607	Integer and Combinatorial Optimization	3	3	0	MATH 602 (Introduction to Optimization)
MATH 608	Operations Research	3	3	0	
MATH 609	Stochastic Processes	3	3	0	
MATH 610	Time Series Analysis	3	3	0	MATH 605 (Regression Analysis)
MATH 611	Design of Experiments	3	3	0	MATH 605 (Regression Analysis)
MATH 614	Fractional Calculus	3	3	0	
MATH 616	Advanced Linear Algebra	3	3	0	
MATH 617	Measure Theory and Integration	3	3	0	
MATH 618	Abstract Algebra	3	3	0	
MATH 619	Graph Theory	3	3	0	
MATH 620	Selected Topics in Applied Mathematics	3	3	0	
MATH 713	Multiple Criteria Optimization	3	3	0	MATH 602 (Introduction to Optimization)
MATH 714	Number Theory and Cryptography	3	3	0	CSCI 101 (Introduction to Computer Science)
MATH 715	Advanced Functional Analysis	3	3	0	MATH 603, MATH 612
MATH 716	Harmonic Analysis	3	3	0	MATH 612
MATH 718	Measure theory II	3	3	0	MATH 603, MATH 612