

Postgraduate Faculty & Their Research Interests

Teacher Name	Research Interest
Dr. Muhammad Shahid Rafique Professor and Dean	Laser Physics, Experimental Plasma Physics
Dr. Muhammad Mushtaq Professor and Chairman	Fluid Mechanics, Vector and Tensor Analysis
Dr. Asma Rashid Butt Professor	Functional Analysis
Dr. Sabir Hussain Professor	Applied Functional Analysis, Theory of Time Scales, Inequalities with Applications
Dr. Qasim Ali Ch. Professor	Bio Mathematics, Mathematical Modeling, Numerical Analysis
Dr. Muhammad Irfan Qadir Associate Professor	Condensed Matter Physics, Theoretical Mechanics, Numerical Methods
Dr. Shafiq-ur-Rehman Associate Professor	Development of Numerical Integrators for Differential Equation and the use of Simulations to Model the Dynamics of the Solar System.
Dr. Mustafa Habib Associate Professor	Biomathematics
Dr. Samia Riaz Associate Professor	Variational Inequalities, Numerical Analysis
Dr. Saadia Farid Associate Professor	Fluid Mechanics
Dr. Anjum Pervaiz Assistant Professor	Numerical Analysis, Differential Equations
Dr. Shamaila Samreen Assistant Professor	Computer Aided Geometric Design (CAGD), Computer Graphics, Geometric Modeling, CAD/CAM and CAE
Dr. Kashif Ali Khan Assistant Professor	Fluid Dynamics, Numerical Simulation
Dr. Muhammad Shabbir Assistant Professor	Fourier Analysis, Numerical Solutions of Differential Equations
Dr. Taimoor Iqbal Assistant Professor	Topology Optimization, Finite Element Modeling
Dr. Ali Ovais Lectuer	Graph Theory and Combinatorics

SYLLABI & COURSES READING DEGREE OPTIONS

Following option is available:

Thesis Option: 8 Subjects (24 credit hours) + Research Thesis (6 credit hours)

SUBJECTS OFFERED IN M.PHIL/Ph.D

Note: All courses are 3 (3+0) credit hours each unless otherwise specified.

- Ph.D. students may choose courses from the general optional list in addition to the courses mentioned in the lists of optional courses for

Curriculum for M.Phil in Applied Mathematics

Course Code Course Title	
First Semester	
MATH-701	Integral Transforms
MATH-702	Viscous Fluid Flow
OPTIONAL COURSES	
The student will have choice of two courses out of the following:	
MATH-703	Applied Linear Algebra-I
MATH-704	Approximation Theory
MATH-705	Advanced Operations Research-I
MATH-706	Electro-hydrodynamics
MATH-707	General Theory of Relativity
MATH-708	Analytical Dynamics
MATH-709	Theory of Splines-I
MATH-710	Applied Functional Analysis-I
MATH-711	Numerical Solutions of Non Linear System of Equations and Ordinary Differential Equations
MATH-712	Theory of Differential Equations
MATH-766	Optimal Control Theory in Applications to Biology-I
MATH-767	Numerical Solution of Variational Inequalities-I
MATH-768	Mathematical Analysis, Modelling and Applications-I

Second Semester

Course No:	Title
MATH-713	Numerical Solutions of Partial Differential Equations
MATH-714	Numerical Solutions of Integral Equations
OPTIONAL COURSES	
The student will have choice of two courses out of the following:	
MATH-715	Compressible Fluid Flow
MATH-716	Magneto hydrodynamics
MATH-717	Perturbation Methods in Fluid Mechanics
MATH-718	Applied Linear Algebra-II
MATH-719	Theory of Splines-II
MATH-720	Advanced Operations Research-II
MATH-721	Applied Functional Analysis-II
MATH-722	Advanced Complex Analysis
MATH-771	Optimal Control Theory in Applications to Biology-II

MATH-772	Mathematical Modeling in life Sciences
MATH-773	Numerical Solution of Variational Inequalities-II
MATH-774	Mathematical Analysis, Modelling and Applications-II
MATH-799	Research Thesis (6 credit hours)

FURTHER OPTIONAL COURSES FOR Ph.D MATHEMATICS STUDNTS

Ph.D students may choose courses from the following list in addition to the courses mentioned in the lists of courses for first and second semesters of M.Phil Applied Mathematics.

Course Code Course Title	
Math-723	General Topology
Math-724	Measure Theory and Lebesgue Integration
Math-725	Algebraic Topology-I
Math-726	Galois Theory-I
Math-727	Topological Vector Spaces
Math-728	Algebraic Topology-II
Math-729	Galois Theory-II
Math-730	Ordered Linear Spaces
Math-731	Topics in Variational and Quasivariational Inequalities
Math-732	Advanced Algebra
Math-733	Optimization Theory-I (Derivative Based Methods)
Math-734	Optimization Theory-II (Derivative Free Methods)
Math-735	Numerical Solution of Differential-Algebraic Equations
Math-736	Advanced Mathematical Modeling
Math-737	Set-Valued Analysis
Math-738	Fixed Point Theory and its Applications
Math-739	Advanced Graph Theory
Math-740	Genetic Algorithms and Engineering Optimization
Math-741	Advanced Network Flow Theory
Math-742	Fractional Calculus
Math-743	Theory of Time Scales
Math-744	Continuum Mechanics
Math-745	Gas Dynamics
Math-746	Computational Fluid Dynamics
Math-747	General Tensors
Math-748	Special Functions
Math-749	Finite Element Method
Math-750	Boundary Element Methods
Math-751	Introduction to Modeling of Processes in Cell Biology
Math-752	Advance Course in Numerical Analysis: Mathematical Modeling of Biological System
Math-753	Best Approximation
Math-754	Numerical Functional Analysis
Math-900	Ph. D Thesis