



WHY PHD-MATHEMATICS AT IBA?

The PhD in Mathematics at IBA is a rigorous and fully funded program designed to advance scholarly expertise in pure and applied mathematics. With a strong foundation in theory and quantitative methods, the program fosters specialized research across areas such as algebra, geometry, computational mathematics, and mathematical physics. Aligned with international academic standards, it prepares students for impactful careers in academia, research institutions, and industry.

- 18 Credit Hours of Coursework
- 4 - 8 Years Completion Time
- Access to Specialized Faculty & Mentorship
- Thesis Track
- Expert Faculty and Research Support
- Solid Grounding in Pure & Applied Mathematics



SCHOOL OF MATHEMATICS & COMPUTER SCIENCE



IBA Karachi is one of Pakistan's premier institutions, known for academic excellence, interdisciplinary learning, and cutting-edge research across diverse fields.

The School of Mathematics and Computer Science (SMCS) is a rapidly growing academic unit at IBA, offering excellence in computing and mathematical sciences. With a highly qualified faculty comprising researchers and industry experts, SMCS integrates rigorous academics with practical exposure. The school houses advanced labs in Artificial Intelligence, Web Science, Big Data, and Telecommunications. Its programs in Computer Science and Mathematics provide a solid foundation in theory and application—preparing students for research, higher education, and impactful careers in the tech and data-driven economy.



COURSE STRUCTURE

The PhD Mathematics program offers rigorous training in pure and applied mathematics through advanced coursework and research. Students must maintain a minimum CGPA of 3.0 in coursework. The program prepares scholars for careers in academia, research, and high-level quantitative roles across industries.

PhD Mathematics students must fulfill the following requirements:

- Completion of Course Work (6 courses of 3 credit hours each)
- Acceptance of research paper in X or W, HEC category journal
- Comprehensive Examination
- Evaluation of thesis by international reviewers
- PhD Thesis Proposal Defense
- Thesis Defense

ELECTIVE COURSES

The PhD Mathematics program offers a diverse range of advanced electives that support rigorous, specialized research in both pure and applied mathematics. Students can explore areas such as Algebraic Geometry, Homological Algebra, Scientific Computing, Stochastic Differential Equations, Smooth Manifolds, and Mathematical Physics. Additional electives like Statistical Machine Learning, Data Mining, and Arithmetic Algebraic Geometry allow students to tailor their coursework to match their academic focus and research pursuits.

SCHOLARSHIPS, GRANTS & FINANCIAL ASSISTANCE

Fully Funded Program: PhD Mathematics students receive full funding, including 100% tuition waiver and a monthly stipend of up to PKR 100,000.

Performance-Based Assistantships: Teaching and research assistantship opportunities are available based on academic performance and full-time enrollment.

International Research Grants: Merit-based travel grants are awarded for participation in international research conferences and academic events.

Advanced Research Access: Students gain access to cutting-edge labs in AI, Big Data, and Web Science for interdisciplinary research.



ACADEMIC ENVIRONMENT

EXPERT FACULTY & RESEARCH DEPTH

The PhD Mathematics program at IBA is led by a team of highly qualified faculty specializing in Pure, Applied, Financial, and Computational Mathematics. With a strong research background and active academic engagement, faculty members provide close mentorship, guiding students through complex theoretical and applied research challenges.

INTERNATIONAL COLLABORATION

Students benefit from a globally connected academic environment, with numerous opportunities to collaborate with internationally renowned mathematicians. These include joint research projects, academic conferences, visiting scholar interactions, and institutional partnerships that broaden research perspectives and professional networks.

RESEARCH-DRIVEN LEARNING

At the core of the program is a commitment to rigorous, research-oriented education. The curriculum encourages deep theoretical inquiry alongside practical application, equipping students with the tools to contribute meaningfully to emerging mathematical problems across academia, research institutions, and industry.



CAREER OPPORTUNITIES

Graduates of the PhD Mathematics program are prepared for high-impact academic, research, and analytical roles across global universities, research centers, and industries, including:

- Data Scientist / Analyst
- Quantitative Analyst (Quant)
- Cryptographer / Cybersecurity Analyst
- Mathematical Modeler in Engineering
- Algorithm Developer
- Financial Risk Analyst

ELIGIBILITY CRITERIA

■ MS/MPhil in Mathematics from an HEC-recognized local or foreign university with a minimum of 60% marks or a CGPA of 3.0 out of 4.0 in the last degree (percentage considered only if CGPA is unavailable).

■ Applicants must fulfill specific departmental criteria, including a written test and interview.

APTITUDE TEST EXEMPTION

Minimum score of 600 on the GMAT, or a GRE score of 160 in quantitative and 150 in verbal.



https://mathematics.iba.edu.pk/phd_mathematics.php

FOR MORE INFORMATION



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PHD - MATHEMATICS

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POSTGRADUATE PROGRAM