



**MS & PhD**  
**MATHEMATICS**

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**EMPOWERING EVERY JOURNEY**

*Syed Babar Ali School of Science and Engineering*

$$f: G \rightarrow G' \text{ group homomorphism}$$
$$G / \ker(f) \xrightarrow{\sim} f[6] \subset G'$$

Man pointing at the chalkboard.

# SYED BABAR ALI SCHOOL OF SCIENCE AND ENGINEERING (SBASSE)

## **LUMS and SBASSE Fostering a Dynamic Learning Environment**

Founded in 1985 as a not-for-profit, LUMS believes in making quality education accessible while breaking academic, geographic, and socio-economic barriers to enhance students' academic exposure.

SBASSE at LUMS is advancing innovative teaching and impactful research in science and technology. The MS programmes offer rigorous, professional, and research-focused training, with two pathways: MS-by-Coursework or MS-by-Thesis. The PhD programmes prepare students for independent, high-quality research. Key milestones include Coursework, Comprehensive (Qualifying) Exams, Thesis Proposal Defense, at least one article in a peer-reviewed journal, and final PhD Thesis Defense.

## **WHY MS & PHD MATHEMATICS AT LUMS?**

The Department of Mathematics brings together faculty, students, and researchers to work across diverse fields, from algebraic topology to environmental mechanics. Committed to both pure and applied mathematics, the department offers flexible programmes that students can tailor to their individual interests.

## **MS MATHEMATICS IN PARTNERSHIP WITH ICTP, ITALY**

Jointly offered with Abdus Salam International Centre for Theoretical Physics (ICTP), Italy, the International Mathematics Masters (IMM) attracts top local and international talent.

- Opportunities for short-term research visits for students at leading research institutes
- High-calibre faculty and visiting professors from leading institutions engaged in team teaching and joint supervision
- Rigorous coursework in modern mathematics combined with cutting-edge research
- Selected international students will be eligible for full fee waiver, free hostel stay, a monthly stipend for two years, as well as air travel

# PHD MATHEMATICS

The PhD Mathematics programme at SBASSE is a full-time, four-year programme that:

- Recruits top local and international talent
- Provides four years of fully funded education
- Offers opportunities for additional funding for collaborative research and teaching
- Pays students a monthly stipend as per university policy
- Offers opportunities for short-term research visits
- Combines rigorous coursework in modern mathematics with cutting-edge research

Note: All students are required to serve as a Teaching Assistant for at least two courses during their study

## RESEARCH PROJECTS

The research interests of faculty in the Department of Mathematics include areas in Pure, Applied, and Computational Mathematics. The Department welcomes interdisciplinary and cross-disciplinary research. PhD applicants are required to carefully select one of the available faculty advisers based on their background and interest in the prospective adviser's research area:

### ■ SYMMETRIES OF DIFFERENTIAL EQUATIONS

Dr. Imran Naeem

### ■ COMPUTATIONAL AND MATHEMATICAL BIOLOGY

Dr. Adnan Khan, Dr. Sultan Sial & Dr. Ali Ashher Zaidi

### ■ NUMERICAL METHODS, SCIENTIFIC COMPUTATION

Dr. Sultan Sial

### ■ FINANCIAL MATHEMATICS

Dr. Adnan Khan & Dr. Sultan Sial

### ■ COMMUTATIVE ALGEBRA, ALGEBRAIC GEOMETRY

Dr. Reza Abdolmaleki, Dr. Imran Anwar, Dr. Haniya Azam & Dr. Shaheen Nazir

### ■ ALGEBRAIC TOPOLOGY, APPLIED TOPOLOGY, HOMOLOGICAL MIRROR SYMMETRY

Dr. Haniya Azam



# CAREER PROSPECTS

With their strong analytical training, research exposure, and problem-solving skills, our graduates are well-equipped to secure impactful roles in the following sectors:

- Finance & Banking: Quantitative analysts, statisticians, and actuaries
- Academics & Research: Lecturers, assistant professors, and researchers in Pakistan and abroad
- Data Science & Analytics: Careers in mathematical modeling, machine learning, and big data
- Technology Sector: Algorithm design, cryptography, and computational mathematics roles in IT and software companies
- Government & Policy: Mathematical modeling for urban planning, economics, and public policy



“ The programme provided rigorous training in advanced mathematics through a strong combination of coursework and exposure to both local and international faculty. The academic environment within the department was highly conducive to learning and research, fostering analytical depth, independent thinking, and collaboration. Being a fully funded student at LUMS allowed me to focus entirely on my academic development without financial constraints.

**MASOOD AHMAD**

IMM '23

PhD Candidate

King's College London

## ADMISSION CRITERIA AND FINANCIAL SUPPORT

### ADMISSION IS PURELY MERIT-BASED.

Scan the code to explore eligibility, deadlines, how to apply to the MS Mathematics programme and find out how LUMS can support your academic journey.



PhD Mathematics is a fully funded programme. Scan the code to find out details on how to apply.



### PHD MATHEMATICS ADMISSION CRITERIA FOR FOREIGN NATIONALS

Foreign nationals must obtain a visa and a no-objection certificate to study at LUMS, with support provided by the university. Applicants from developing countries may also apply via the TWAS-UNESCO portal: <https://rb.gy/j83y7v>. Scan to find out more.

