## ADMISSION **CRITERIA**

Admission is purely merit-based and rests on the following criteria:

### MS & PHD PROGRAMMES

- Academic Record
- Performance in Admission Tests
- Research Statement (for PhD applicants only)
- Online Application Submission
- Online Submission of Supporting Documents and Fee Payment
- Letters of Recommendation (for PhD applicants only)
- Application Review
- Interview Performance (if shortlisted)

**Note:** These are the minimum criteria applicants must fulfil to be eligible to apply. Meeting these criteria does not guarantee admission to LUMS.

Scan for more information on MS Biology

## PHD ADMISSION CRITERIA **FOR FOREIGN NATIONALS**

The following criteria applies to all foreign applicants:

- Academic Record
- Research Background
- Letters of Recommendation
- Online Application Submission
- Online Submission of Supporting Documents
- Application Review
- Online Test and Interview Performance (if shortlisted)

To study at LUMS, foreign nationals must follow requirements such as obtaining a visa and a no-objection certificate from Pakistani authorities. LUMS will assist in this process.

Scan for more information on PhD Biology

## ZAINAB NASIR

PhD Biology Student

"The Department of Life Sciences has offered me exceptional opportunities for interdisciplinary collaboration. Working with experts from diverse fields has enriched my research, fostering innovative solutions to complex problems. Collaborating with individuals from varied academic backgrounds has broadened my perspective, enhancing my critical thinking and adaptability. This unique environment has not only advanced my scientific expertise but also helped me cultivate the leadership and communication skills essential for contributing to the ever-evolving academic landscape."

## FINANCIAL **SUPPORT**

- Merit scholarships
- Partial tuition fee waivers for students pursuing MS in Basic Sciences
- LUMS Financial Aid (for local applicants only) aims to reduce financial barriers to higher education, nurturing an inclusive and vibrant community where academically distinguished students can realise their full potential and achieve their professional aspirations. At the graduate level, financial aid is provided in the form of an interest-free loan.
- Fully-funded scholarship for PhD that covers admission, tuition, semester registration fees, and a monthly stipend subject to the supervisor's approval for 4 years
- Options to work as Research or Teaching Assistants (subject to availability)
- External scholarships (support and eligibility for these vary depending on the donor)

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Learning Without Borders

# MS & PHD BIOLOGY


## SYED BABAR ALI SCHOOL OF SCIENCE AND ENGINEERING


# SYED BABAR ALI SCHOOL OF SCIENCE AND ENGINEERING

Founded in 1985 as a not-for-profit, LUMS has pioneered innovative educational trends. The expanse of research and teaching at LUMS offers its community 'Learning Without Borders' by breaking academic, geographic, and socio-economic barriers to enhance students' academic exposure and make education accessible to all.

The Syed Babar Ali School of Science and Engineering (SBASSE) at LUMS is at the forefront of research and teaching in Pakistan. The MS programmes at SBASSE are rigorous and designed to impart specialised professional and research-oriented training to students. All SBASSE departments offer at least two options to choose from: MS-by-Coursework or MS-by-Thesis. The School's PhD programmes prepare students to think scientifically and conduct high-quality research independently. Major milestones that must be achieved for the successful completion of the PhD degree include the Coursework, Comprehensive (Qualifying) Examination, Thesis Proposal Defense, at least one peer-reviewed journal article, and PhD Thesis Defense.

# WHY MS AND PHD **BIOLOGY** AT LUMS?

## LUMS AND SBASSE FOSTER A DYNAMIC LEARNING ENVIRONMENT

### QS WORLD UNIVERSITY RANKINGS BY SUBJECT

- #401-450
  Computer Science and Information Systems
- #351-400
  Engineering – Electrical and Electronics
- #401-450
  Engineering and Technology

The world-class teaching and research programmes at the Department of Life Sciences set it apart in the region. The state-of-the-art laboratories at the Department enable its faculty and students to undertake cutting-edge research projects and make discoveries that advance the frontiers of life sciences. The students enjoy an academically rich and intellectually stimulating environment. In particular, internationally recognised faculty members are leading groups of researchers that work in diverse and interdisciplinary research areas, including genetics and epigenetics, structural biology of viruses, cell signalling and cancer therapeutics, molecular epidemiology, drug resistance, bioinformatics, and computational biology.

# COURSES AND **RESEARCH PROJECTS**

Graduate students are exposed to advanced courses in a wide range of research areas and provided training in different research methodologies. For their research, students can opt for one of the following research groups led by individual faculty members:

- **PLANT BIOTECHNOLOGY AND MOLECULAR BIOLOGY**
  Dr. Khurram Bashir
- **CELL SIGNALLING AND CANCER THERAPEUTICS**
  Dr. Amir Faisal
- **SYSTEMS BIOLOGY, COMPUTATIONAL PROTEOMICS AND HEALTH INFORMATICS**
  Dr. Safee Ullah Chaudhary
- **EPIGENETICS AND GENE REGULATION**
  Dr. Muhammad Tariq
- **MOLECULAR EPIDEMIOLOGY AND MICROBIOLOGY**
  Dr. Shaper Mirza
- **CHROMATIN FUNCTIONS AND GENOME INTEGRITY**
  Dr. Muhammad Shoaib
- **PLANT GENETICS AND EPIGENETICS**
  Dr. Zaigham Shahzad

# EMBRACE THE **LIFE SCIENCES EXPERIENCE**

The Department of Life Sciences is distinguished for its outstanding faculty and students, who have published in top-tier journals and earned prestigious accolades. Some of their research achievements are as follows:

- **AN INTEGRATIVE DIAGNOSTIC DATA-DRIVEN SCREENING TOOL FOR BORDERLINE HYPERGLYCEMIA**
  Developed by Amna Tahir (PhD student from Dr. Safee Ullah Chaudhary's lab)
- **DEVELOPMENT OF PRECISION THERAPIES FOR THE TREATMENT OF HEAD AND NECK CANCER**
  Developed by Zainab Tahir (PhD student from Dr. Safee Ullah Chaudhary's lab) by employing the in-house platform, 'Theatre for in Silico Systems Oncology (TISON)'
- **THE SOLVATION OF THE E. COLI CHEY PHOSPHORYLATION SITE MAPPED BY XFMS**
  Written by Maham Hamid (PhD student from Dr. Safee Ullah Chaudhary's lab), the paper was published in *International Journal of Molecular Sciences*
- **DESIGN, SYNTHESIS, AND BIOLOGICAL EVALUATION OF SSE1806, A MICROTUBULE DESTABILIZER THAT OVERCOMES MULTIDRUG RESISTANCE**
  Written by Farhat Firdaus (PhD student from Dr. Amir Faisal's lab), the paper was published in *ACS Medicinal Chemistry*
- **FIRE GRANT WORTH PKR 50 MILLION**
  Awarded to Dr. Shaper Mirza, Dr. Safee Ullah Chaudhary, and Dr. Muhammad Shoaib for developing a curriculum and research training in clinical and translational research
- **SPONTANEOUS NETOSIS IN DIABETES: A ROLE OF HYPERGLYCEMIA MEDIATED ROS AND AUTOPHAGY**
  Written by Anam Farhan (PhD student from Dr. Shaper Mirza's lab), the paper was published in *Frontiers in Medicine*
- **A NOVEL ROLE OF THE DROSOPHILA MASK GENE IN CELL FATE MAINTENANCE**
  Discovered by Ammad Shaukat and Mahnoor Bakhtiar (PhD students from Dr. Muhammad Tariq's lab), the research was published in *Developmental Biology*
- **FINGERPRINTING OF HEAVY METALS AND MICROBIAL CONTAMINATION IN HUDIARA DRAIN AND ITS IMPLICATIONS ON HUMAN HEALTH**
  Written by Zainab Nasir (PhD student from Dr. Safee Ullah Chaudhary's lab), the research paper was published in *Environmental Technology & Innovation*
- **FIRST NATIONAL ARTIFICIAL INTELLIGENCE EDUCATION CHAMPIONSHIP**
  Organised by the Departments of Life Sciences, Computer Science, and Electrical Engineering in collaboration with Soliton Technologies and FAST-NUCES
- **CHEMICAL PRIMING AS A SUSTAINABLE TOOL FOR IMPROVED PRODUCTIVITY UNDER STRESS CONDITIONS**
  Session organised by Dr. Khurram Bashir at the 33rd International Conference on Arabidopsis Research, Chiba, Japan in June 2023
- **GRANT WORTH PKR 18 MILLION**
  Awarded to Dr. Zaigham Shahzad and his team by the International Centre for Genetic Engineering and Biotechnology to investigate the adaptation of rice roots to phosphate-deficient environments