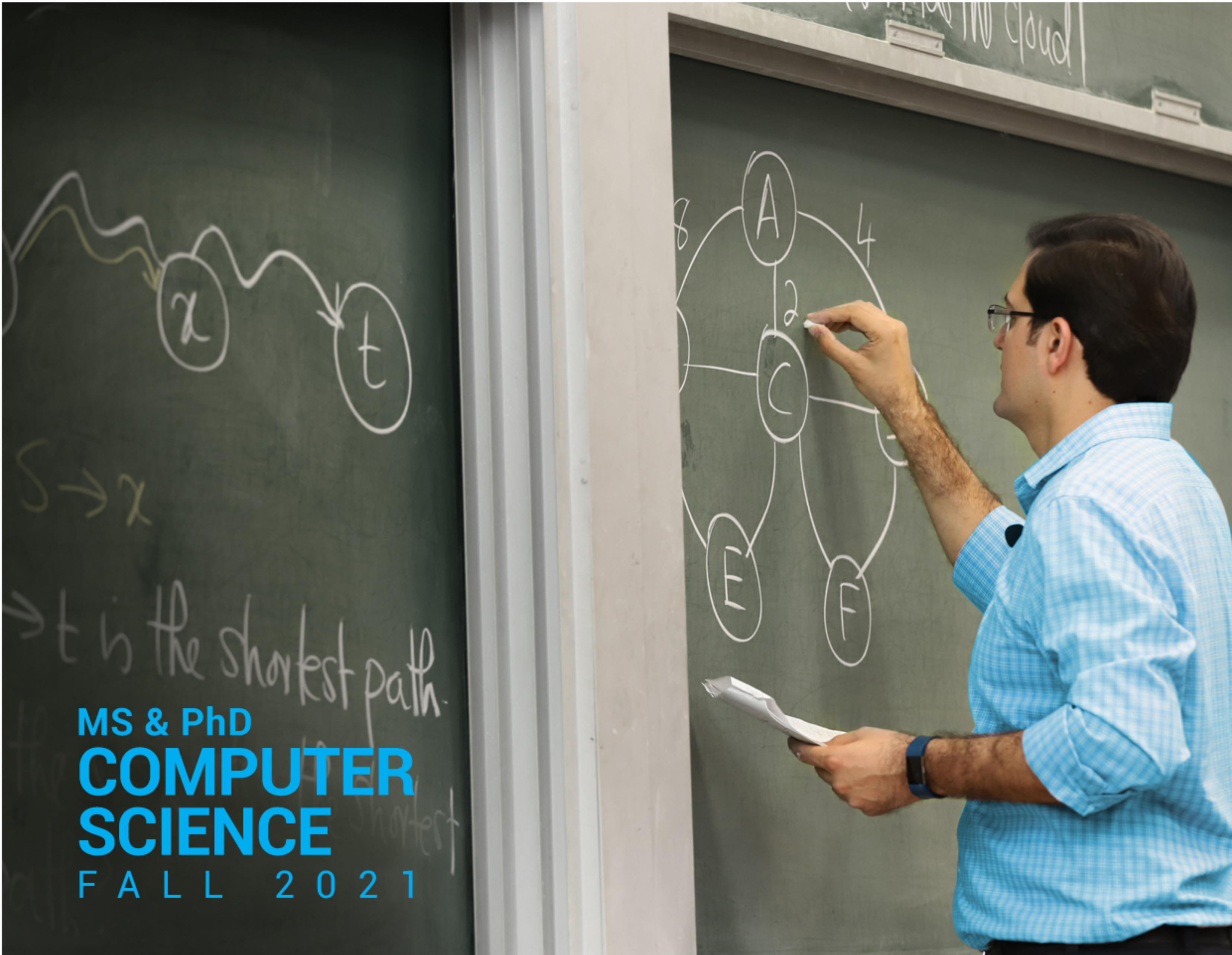


SYED BABAR ALI SCHOOL OF SCIENCE AND ENGINEERING



IMPACT THE WORLD WITH

**RESEARCH &
INNOVATION**

CREATING IMPACT THROUGH RESEARCH



6

DISCIPLINES:

BIOLOGY

CHEMISTRY

COMPUTER SCIENCE

ELECTRICAL ENGINEERING

MATHEMATICS

PHYSICS

For over a decade, the Syed Babar Ali School of Science and Engineering (SBASSE) at LUMS has been imparting top-quality education with an aim to produce future leaders that can make innovative and impactful contributions to science and technology – a key to the success of any nation.

SBASSE offers undergraduate, graduate and doctoral degrees in a wide range of disciplines. The MS programmes at SBASSE are rigorous and designed to impart specialised professional and research-oriented training to students. To graduate, students must accumulate a total of 30 credit hours either entirely from coursework, or by collecting 24 credit hours from coursework and 6 from research work/thesis. Hence, all SBASSE departments offer two options to choose from: MS-by-Coursework or MS-by-Thesis.

The SBASSE PhD programmes prepare students to think scientifically and conduct high-quality research independently. To graduate, students must earn a total of 42 credit hours from which 18 must be from coursework and 24 from research work/thesis. Major milestones that must be achieved for the successful completion of the PhD degree include the Comprehensive (Qualifying) Examination, Thesis Proposal Defense, at least one peer-reviewed journal article and PhD Thesis Defense.

During the course of study, student learning takes place through lectures, tutorials, laboratories, problem-solving exercises, research projects and frequent interaction with experienced and world-class faculty members.

WHY CHOOSE SBASSE



MULTIDISCIPLINARY EDUCATION

The rigorous curriculum of the graduate programmes at SBASSE offers a multidisciplinary learning environment. It provides students with the opportunity to work with knowledge drawn from all six disciplines being offered at SBASSE as a part of the free elective requirement.

LEARNING WITHOUT BORDERS

Research and teaching at LUMS truly offers its community 'Learning Without Borders' by breaking academic, geographic and socio-economic barriers to make education accessible to all. The University continues to be an intellectual hub, rich with varying perspectives and transformative ideas. With an environment brimming with inclusion, unity, and boundless knowledge, learning continues in and beyond the campus walls with the aim to develop innovators, leaders and change-makers who can contribute to the community and build strong borderless networks.



INTERNATIONAL AND NATIONAL EXCHANGE PROGRAMMES

MS and PhD students at SBASSE participate in various exchange programmes and research opportunities sponsored by National ICT R&D Fund, HEC, Commonwealth, Erasmus-Mundus, DAAD etc.



OUR PLACEMENTS

- Top academic placements (Massachusetts Institute of Technology, University of Warwick, London School of Economics, University of Oxford, University of Cambridge etc.)
- Our graduates are hired by top local and international organisations (Engro Corporation, Nestle Pakistan, Systems Ltd., Microsoft, Google, Facebook etc.)
- MS and PhD students work alongside faculty members at SBASSE as Teaching Assistants and Research Assistants.

85+ HIGHLY QUALIFIED FACULTY MEMBERS



TOP-QUALITY PUBLICATIONS

We involve our graduate students in impactful research. Their work has been published in top-quality, renowned journals including:

- Journal of Mathematical Analysis and Applications
- IEEE/ACM Transactions on Networking
- Artificial Intelligence Review
- Photonics and Nanostructures: Fundamentals and Applications
- Organic Letters
- International Journal of Biological Macromolecules
- Nature Publishing Group Research Journals
- The Royal Society of Chemistry's Journals
- Journal of Computational and Applied Mathematics

COLLABORATIONS WITH NATIONAL AND INTERNATIONAL INSTITUTES

- Institute of Electronics and Telecommunications of Rennes, France
- Singapore University of Technology and Design, Singapore
- CentraleSupélec, France
- University of Southampton, UK
- University of Liverpool, UK
- University of Cambridge, UK
- University of Wisconsin-Madison, USA
- University of Massachusetts Amherst, USA
- UC Berkeley
- Google
- Microsoft
- Facebook

MS | PhD

COMPUTER SCIENCE



HOW WILL YOU LAUNCH YOUR NEW WORLD?

The Department of Computer Science will help you stay on top of the growing trends of information and technology. It will equip you with first-hand experience of the quality work being done in the areas of Computer Vision, Data Mining, Networks, Information Security, Privacy and Distributed Systems, Software Engineering, Human Computer Interaction, Big Data, Artificial Intelligence, and Robotics.

As an integral element of a graduate education, the Department of Computer Science provides unmatched research possibilities, opportunities and resources. The Department not only encourages students to get involved in rigorous research alongside coursework but also provides fully equipped clusters, groups and labs.

WHAT WILL YOUR NEW WORLD INVENT?

QUICK FACTS

- 100% JOB PLACEMENT SUCCESS RATE
- 17 PHD FACULTY MEMBERS AT THE CS DEPARTMENT

Faculty members at the Department of Computer Science have years of experience exhibited not only through their taught courses and curriculum, but also through their rigorous research work and publications in renowned journals.

Systems/Security

Dr. Basit Shafiq
Dr. Muhammad Fareed Zaffar
Dr. Mobin Javed

CV/Algorithms

Dr. Murtaza Taj
Dr. Imdad Ullah Khan

AI/Machine Learning

Dr. Agha Ali Raza
Dr. Mian Muhammad Awais
Dr. Asim Karim

HCI/CTD

Dr. Suleman Shahid
Dr. Maryam Mustafa

Software Engineering

Dr. Naveed Arshad
Dr. Junaid Siddiqui
Dr. Shafay Shamail

Networks/IoTs

Dr. Muhammad Hamad Alizai
Dr. Zafar Ayyub Qazi
Dr. Zartash Afzal Uzmi
Dr. Ihsan Ayyub Qazi



HOW WILL COMPUTER SCIENCE HELP YOU LEARN HANDS-ON SKILLS?

The Department offers various research opportunities through the following state-of-the-art facilities:

- Computer Vision Lab
- Robotics and Intelligent Computing Lab (RICE)
- Knowledge and Data Engineering Lab (KADE)
- Software Engineering Research Lab (SERL)
- Networks and Systems Group (NSG)
- Programme Analysis Group (PAG)
- Technology for People Initiative (TPI)
- Computer Human Interaction and Social Experience Lab (CHISEL)
- Embedded Systems & Networks Lab (SYSNET)
- 4G/5G Wireless Research Lab

EMBRACE THE COMPUTER SCIENCE EXPERIENCE

- Dr. Hamad Alizai and Dr. Junaid Haroon Siddiqui, along with students, published a paper titled, 'Intermittent Computing with Dynamic Voltage and Frequency' in EWSN in February 2020. This work was nominated for the best paper award.
- Dr. Agha Ali Raza and co-authors from LUMS, University of Michigan, University of Maryland, and NYU, Abu Dhabi published a paper titled, 'An Empirical Comparison of Technologically Mediated Advertising in Under-connected Populations' in ACM CHI in April 2020. This paper received an Honorable Mention Award at CHI 2020.
- Dr. Agha Ali Raza is running a COVID-19 information hotline in Pakistan over his group's voice-based social media platform, Baang. This initiative is helping disseminate reliable information to under-connected and inaccessible population segments. He is also running RCTs on Baang to understand how to control the spread of misinformation on voice-based social media platforms. He also gave a talk on 'The Viral Spread of COVID-19: Information Using An IVR Social Platform', at Google, Mountain View, CA, USA in July 2020.
- Dr. Mobin Javed and co-authors from MIT, Berkeley, Stanford, Cambridge and UCL received the Applied Networking Research Prize 2020 for their work published in CCR 2018.
- Dr. Maryam Mustafa was awarded a USD 35,000 grant by IDRC for a project on Gendered Design in STEAM, which will span over 36 months. She also organised the first CHI workshop on Islamic Computing, 'IslamicHCI: Designing With-and-Within Muslim Populations' in July 2020.
- Dr. Ihsan Ayyub Qazi and Dr. Agha Ali Raza from the CS Department, along with Dr. Ayesha Ali from the Economics Department, won the prestigious Facebook Research Award in August 2020 for their proposal, 'Countering Deepfake Misinformation Among Low Digital-literacy Populations'. This is the second time in a row that the faculty has won this highly selective award and funding worth USD 90,000.



DR. MUHAMMAD SABIEH ANWAR

Dean and Professor, Syed Babar Ali School of Science and Engineering

“The graduate programmes in science and engineering at SBASSE, LUMS are poised to make an impact. Our deepest impact as an institution would truly be made by the research that emanates from our graduate education and the research that it propels. We are committed to providing a collegial, rigorous and progressive research milieu that triggers the thirst for knowing more and seeking the truth, and in the process, creating tools, gadgets, machines and ideas that address the human condition and global issues. We promise that our graduate programmes will make you ride through the two extremes of the microcosm and the macrocosm, the ideal and the practical, the abstract and the tangible. Welcome to the Syed Babar Ali School of Science and Engineering!”

YOUR JOURNEY BEGINS HERE!

Admission Criteria for Local and International Students

Applicants must meet the minimum eligibility criteria in order to be considered for admission to the Graduate Programmes.

MS Programme

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

- Academic Record
- Performance in Admission Tests*
- Application Review
- Interview Performance (If shortlisted)
- Submission of complete online application, application processing fee and online supporting documents by the stipulated deadline

PhD Programme

- Academic Record
- Performance in Admission Tests*
- Application Review
- Research Statement
- Submission of complete online application, application processing fee and online supporting documents by the stipulated deadline
- Interview Performance (If shortlisted)

Note:

This is the minimum criteria that applicants need to fulfil in order to be eligible to apply. Fulfilment of this criterion does not guarantee admission to LUMS.

*We are aware that the current COVID-19 crisis poses difficulties for applicants to submit GRE test scores. Under the circumstances, you may apply to the MS/PhD Computer Science Programme without the test scores being submitted (if you have not taken the test yet). You may submit your applications without the GRE scores provided all other application components are complete upon submission.

If no GRE is scheduled due to the closure of test centres by March 30, 2021, LUMS will process applications using the available information. If shortlisted, you may then be asked to appear for an interview followed by a conditional acceptance if you are successful. Once test centres are functioning, you will need to sit for the test and attain the minimum test score required by the University.

Performance in Admission Tests

Applicants to the MS/PhD Programme in Computer Science are required to take the **LUMS Graduate Admission Test (LGAT)**, which is comprised of quantitative, verbal, and analytical sections. In addition, applicants are required to take the **SBASSE Subject Test** in Computer Science.



DR. IHSAN AYYUB QAZI

Associate Professor and Chair, Department of Computer Science

“The Department covers a broad spectrum of CS areas and aims to equip students with skills and analytical foundations to tackle important societal challenges such as personalised health, transportation, personalised learning, energy efficiency, accessibility, and ICT for Development (ICT4D). The CS curriculum covers the essential breadth and depth needed for contemporary practice and research through a combination of design and lab work. Our world-class faculty carries out research and teaching in Computer Vision and Graphics, Human Computer Interaction, Data Science and Machine Learning, Computer Networks, Algorithms, Software Engineering, Security and Privacy, Distributed Systems, and ICT4D.”

Exemption for Applicants Who Have Taken Graduate Record Examination (GRE) Test

- Applicants who have taken the **Graduate Record Examination (GRE) General Test** (through the Educational Testing Service (ETS), USA) during the last two years (i.e. after April 11, 2019) and obtained an aggregate score of **300** in the **quantitative** and **verbal** sections may choose not to take the LGAT.

International Applicants

Applicants residing outside Pakistan are required to take the GRE General Test through the Educational Testing Service (ETS), USA. For further information, please visit www.ets.org.

Due to the unavailability of GRE Subject Test in Computer Science, these applicants will be assessed based on their GRE General Test score only.

Note:

- LGAT and SBASSE Subject Test Scores will be valid only for one academic year. The LGAT and SBASSE Subject Test scores will be used for application evaluation hence will not be disclosed to the applicants.

International Students

In order to study at LUMS, foreign nationals must obtain a 'Study Visa' from the Pakistani Embassy/Consulate working in their country. The Pakistani Embassy/Consulate will only issue a Study Visa for students' stay at LUMS upon receipt of Higher Education Commission (HEC), Pakistan's 'No Objection Certificate' and clearance from the Ministry of Interior, Pakistan.

For the issuance of Visa, students must submit relevant documents to the LUMS Admissions Office through postal mail/courier service by the stipulated deadline.

For details, please visit international.lums.edu.pk

FINANCIAL SUPPORT FOR LOCAL AND INTERNATIONAL STUDENTS

Admission to all LUMS programmes is purely on merit and independent of students' ability to pay the related tuition fees. Once a student has been admitted to a programme, there are several mechanisms in place to provide financial support based on need and merit. All awards are reassessed each academic year based on performance, need, available resources and prevailing University policies. LUMS is committed to providing as much financial assistance as possible within the limits of its available resources. Nevertheless, the University may not be able to meet all requests for financial assistance, and it is strongly recommended that applicants secure as much of their own funding as possible. Several funding opportunities are available to deserving MS and PhD students. These include:

- Merit Scholarships for MS programmes
- LUMS Interest Free Loan (only for local applicants)
- External Scholarships (support and eligibility for these scholarships vary depending on the donor)
- 100% Scholarships (tuition, registration, admission, and a stipend) for PhD students for 4 years
- HEC Research Grants
- Options to work as Research or Teaching Assistants (subject to availability)

For details, please visit

<https://financial-aid.lums.edu.pk/graduate-financial-aid>



SHIFA IMRAN MS Computer Science 2019

“ My experience at the Computer Science department has been the best so far as I found all instructors to be extremely appreciative. This nourishing environment motivated me to move out of my comfort zone and study courses I thought I might not be good at.”

DATES TO REMEMBER

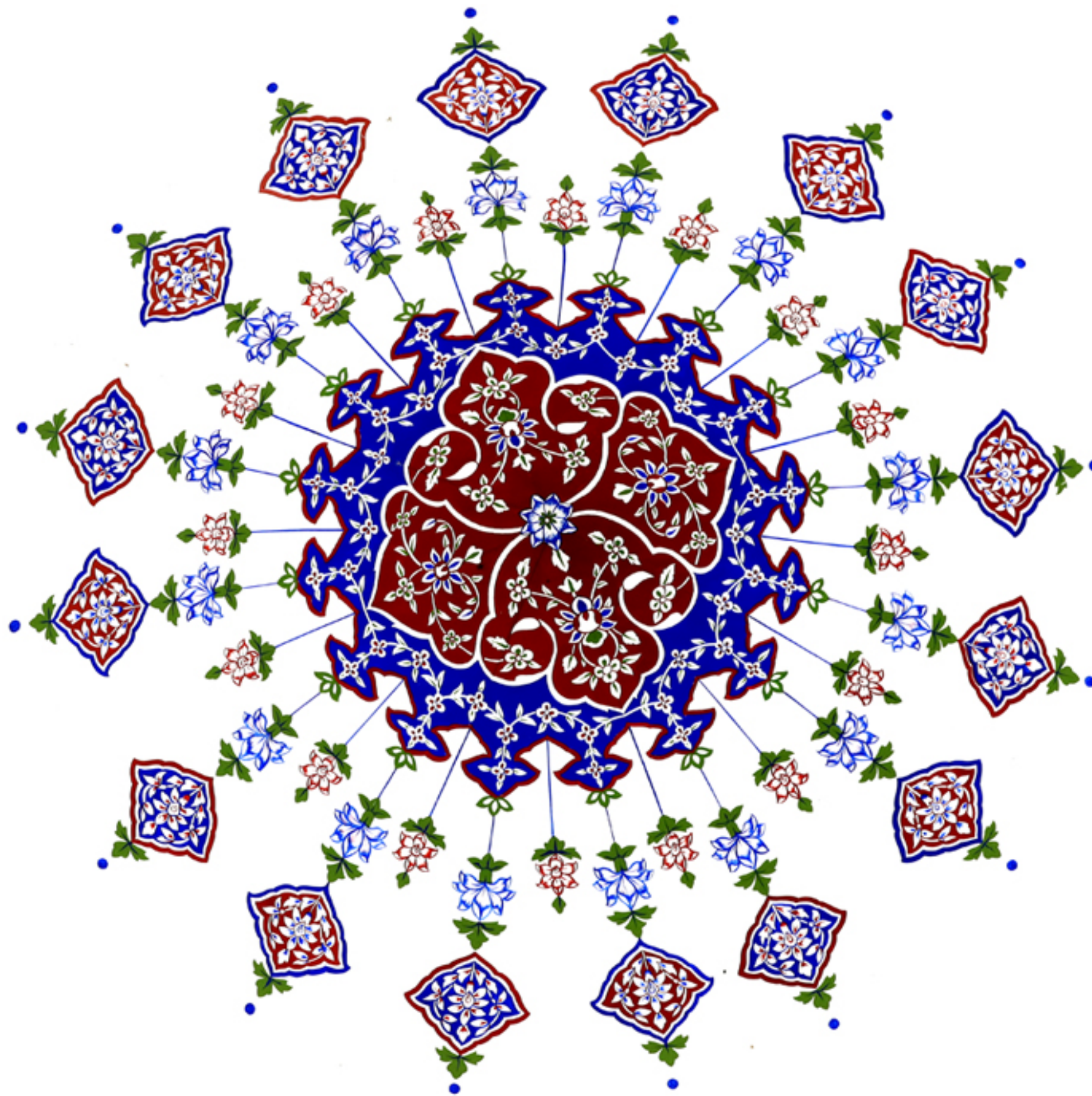
DEADLINE TO APPLY
MARCH 30, 2021
5:00 pm (PKT)

DEADLINE TO SUBMIT ONLINE
SUPPORTING DOCUMENTS
APRIL 02, 2021

LGAT & SBASSE
SUBJECT TEST
APRIL 11, 2021

DEADLINE TO APPLY FOR LUMS
CONTINUING STUDENTS
MARCH 30, 2021
5:00 pm (PKT)

DEADLINE TO TAKE GRE
APRIL 11, 2021
ADMISSION DECISIONS
JUNE 15 - JULY 31, 2021



LUMS

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Email: admissions@lums.edu.pk
Website: www.lums.edu.pk



#LearningWithoutBorders
#MeritMatters