

Master of Science in Data Science and Engineering

كلية العلوم والهندسة
College of Science & Engineering
جامعة حمد بن خليفة
HAMAD BIN KHALIFA UNIVERSITY



Master of Science in Data Science and Engineering

The Master of Science program in Data Science and Engineering (MS DSE) aims to provide students with a strong foundation in data engineering, big data science, and data analysis. The program integrates the knowledge, expertise, and educational assets of HBKU and its research institutes in data collection, management and analytics, and scalable data-driven knowledge discovery, as well as the fundamental concepts behind these techniques.

The program aims to equip students with state-of-the-art methods and theory related to the next generation of 'big data' technology. It offers its participants the option of either completing a research thesis or working on an industrial project.

Program focus

- ▶ Fundamental knowledge in data science, engineering, and technology, spanning areas such as applied statistics, machine learning, and technological tools such as cloud platforms for large-scale data analysis.
- ▶ Hands-on experience in real-world projects related to scalable big data collection, storage, management, analysis, and mining, as well as knowledge extraction and discovery.
- ▶ Research thesis or industrial project involving original work related to data science and engineering, guided by world-class faculty members from CSE and from HBKU's research institutes.

Curriculum

A 33-credit program taught over two years that includes:

- ▶ Four core courses that provide students from diverse backgrounds with a coherent learning environment to tackle issues in data science and engineering.
Four core courses:
 - ▶ Research Methods and Ethics
 - ▶ Statistics for Science and Engineering
 - ▶ Advanced Data Management Systems
 - ▶ Applied Data Analytics
- ▶ Four elective courses covering some engineering and science fundamentals in addition to a variety of data science and engineering electives, providing students with a solid base and depth to fully understand different aspects of data science and engineering, and the interrelations between them.

- ▶ One semester of graduate research seminars aimed at expanding students' horizons by offering a broad range of topics covered through invited talks and presentations from industry, research institutes, academia, and government institutions and organizations.
- ▶ Students are also recommended to take a machine learning course as an elective.
- ▶ A nine-credit research thesis or six-credit industrial project.
- ▶ The program offers flexibility by enabling students to focus on different areas of interest through the choice of electives and projects related to data science and engineering, such as data collection, storage, management, analysis, and knowledge extraction and discovery.

Admission and application requirements

Applicants seeking admission to the Master of Science in Data Science and Engineering program at HBKU should have a strong academic record (minimum 3.0 GPA out of 4.0) from a recognized university. They should have a bachelor's degree, and must have also majored in one of the following disciplines: computer science, information systems, engineering, mathematics, and related fields.

Applicants are required to submit an IELTS score of 6.5 or TOEFL score of 79 to demonstrate their proficiency in English.

Further details about the language proficiency requirement and the process to seek exemption (where this is an option) are available at admissions.hbku.edu.qa.

While the GRE is not required for admission to the master's programs at the College of Science and Engineering, a strong GRE score will help strengthen the applicant's admission material. Prior research experience will be seen as favorable.

Further information about admission requirements is available: admissions.hbku.edu.qa

Application requirements

A completed online application form:
admissions.hbku.edu.qa

Academic transcripts

Official electronic copies of transcripts should be submitted as part of the online application. Final transcripts and graduation statements are required for all previous university studies. All transcripts submitted should include an explanation of the grading system. For those who have not completed their current studies, transcripts must include results from the last completed semester of coursework. Transcripts in languages other than English or Arabic must be accompanied by an official translation. Applicants who are admitted to the program based on copies of or incomplete transcripts will be required to provide original transcripts upon enrollment in order to register for courses.

Standardized test results

Official copies (where required) must be sent directly to HBKU. Please refer to the institutional codes below:

- ▶ GRE: 7551
- ▶ GMAT: H6S
- ▶ TOEFL: 4981
- ▶ IELTS: No code required. Students should ask the IELTS center where they tested to send the IELTS TRF to Hamad Bin Khalifa University.

Applicants should also submit copies of their test scores with the online application.

Letters of recommendation

Applicants should submit two letters of recommendation, one of which must be from an academic referee. Please visit admissions.hbku.edu.qa for further information about the submission process.

Personal statement of interest

Applicants should submit a personal statement (300-500 words) as part of the online application. The statement should explain why the candidate is applying to the program, and how their studies will contribute to the achievement of their personal objectives, including information about the applicant's research interests and achievements. Personal statements that are incomplete or below the minimum word count will not be accepted.

Resume/Curriculum vitae

Applicants should submit a copy of their current resume or curriculum vitae as part of the online application.

This should include the following information:

- ▶ Academic qualifications
- ▶ Professional experience
- ▶ Publications
- ▶ Research projects
- ▶ Academic awards or honors
- ▶ Conference presentations

Identification document

All applicants should submit an electronic copy of their passport as part of the online application. Nationals and residents of Qatar should also submit their valid Qatari ID.

Student funding

The College of Science and Engineering provides opportunities for funding on a competitive basis. Further information will be provided to applicants who are admitted to the program.