Master of Science (MSc) Program in Big Data Technology

Program Director:
Lei CHEN, Professor of Computer Science and Engineering

The Master of Science (MSc) program in Big Data Technology aims to educate students about big data and issues related to big data. Students are expected to be familiar with the workflow of big data systems and social and societal implications of big data systems. Big data is poised to change the way enterprises function and a society operates, and is changing the way engineering and science is conducted. Jointly offered by the Department of Computer Science and Engineering and the Department of Mathematics, the program integrates different disciplines together to allow students to know all the important aspects of big data and how it is used in the real world.

Program Learning Outcomes
On successful completion of the program, graduates will be able to:

• Identify, explain, and use Big Data infrastructure;
• Solve Big Data integration and storage problems;
• Perform various data analytic tasks using Big Data management and computing techniques;
• Derive knowledge and strategies from Big Data analytics and apply them to privacy protection and policy making; and
• Investigate existing problems on Big Data and conduct original Big Data research.

Admission Requirements
Applicants must possess a bachelor’s degree in Computer Engineering, Computer Science, Mathematics or a related field from a recognized university or tertiary institution. Applicants with a bachelor’s degree in other disciplines must have relevant working experience in IT and Mathematics related fields.

Program Duration
The normal duration for program completion is one year in full-time mode and two years in part-time mode.

Program Fee
The program fee is HK$150,000. New students admitted with credit transfer are also required to pay the full program fee. Students who take additional courses or need to retake any courses are required to pay additional fee.

Curriculum
Students are required to complete 30 credits of coursework, including 12 credits of core courses and 18 credits of elective courses.
a) **Core courses** (12 credits)

- MSBD 5001  Foundations of Data Analytics
- MSBD 5002  Data Mining and Knowledge Discovery
- MSBD 5003  Big Data Computing
- MSBD 5004  Mathematical Methods for Data Analysis

b) **Elective courses** (18 credits)

- MSBD 5005  Data Visualization
- MSBD 5006  Quantitative Analysis of Financial Time Series
- MSBD 5007  Optimization and Matrix Computation
- MSBD 5008  Introduction to Social Computing
- MSBD 5009  Parallel Programming
- MSBD 5010  Image Processing and Analysis
- MSBD 5011  Advanced Statistics: Theory and Applications
- MSBD 5012  Machine Learning
- MSBD 5013  Statistical Prediction
- MSBD 5014  Independent Project
- MSBD 6000  Special Topics

Subject to the approval of the Program Director, students may take a maximum of 6 credits of CSIT courses from the MSc program in Information Technology as partial fulfillment of the graduation requirements of the program.

Part-time students may take a maximum of 9 credits each term.

**Credit Transfer**

Credit transfer may be granted to students in recognition of studies completed successfully elsewhere. Upon the approval of the Program Director, a maximum of 9 credits can be transferred from other institutions to the program, subject to University regulations governing credit transfer for postgraduate programs.

**Graduation Requirements**

Students must complete the program with a graduation grade average (GGA) of 2.850 or above as required of all postgraduate students at the University. Students failing to meet the GGA requirement are required to repeat or take additional course(s) even if they attain passing grades for all courses.