MSc in Medical Data Science Postgraduate Scheme in Health Technology

Credit Required for Graduation
31

Tuition Fee
HK$8,200 per credit (x 30 credits) for local and non-local students
(Note: There is no tuition charge for the 1-credit AIE subject.)

Mode of Attendance
Mixed Mode (full-time or part-time)

Normal Duration
1.5 years for full-time study
3 years for part-time study

Entrance Requirements
- A Bachelor's degree in bioinformatics, computer science, computer engineering, electronic engineering, biomedical engineering, physics, applied mathematics, natural sciences, life sciences, biomedical sciences, biology, biochemistry, biotechnology, medical laboratory science, data science, big data analysis, public health or healthcare-related disciplines from PolyU or a recognised institution.
- Other qualifications may be considered on an individual basis.

Scholarships
HTI Entry Scholarships for Taught Postgraduate Programmes are available.

Contact Information
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The Hong Kong Polytechnic University
香港理工大學

Department of Health Technology and Informatics
醫療科技及資訊學系

MSc in
Medical Data Science
Postgraduate Scheme in Health Technology

醫療數據科學理學碩士學位

SEPT 2026 Entry

Subject Offerings*

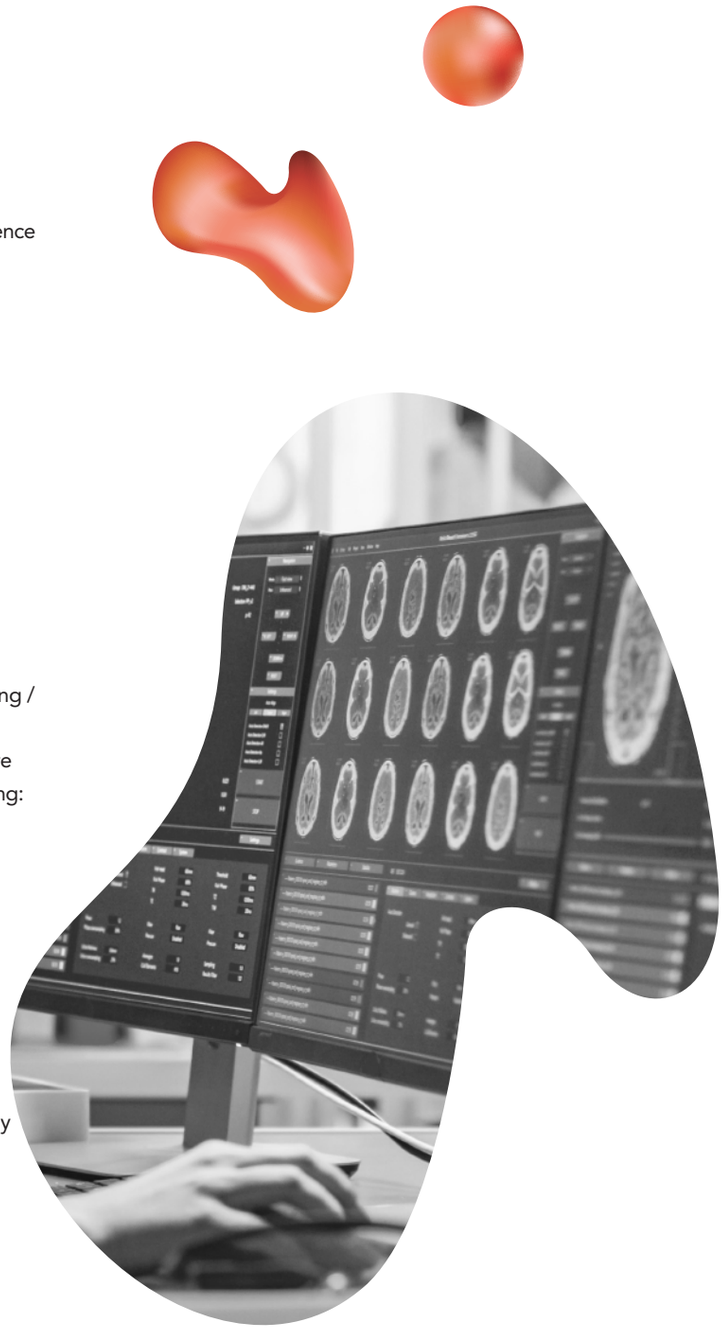
MSc in Medical Data Science

Compulsory / Core Subjects

- Research Methods & Biostatistics
- Advanced Molecular Biology and Genetics in Medical Science
- Algorithms in Bioinformatics and Genomics
- Bioinformatics in Health Sciences
- Data Structures and Database Systems
- Ethical Issues in Medicine and Research
- Principles of Data Science
- Systems Biology

Elective Subjects

- Advanced Medical Image Analysis with Deep Learning
- Advanced Technology and Clinical Application in Computed Tomography / Advanced Technology and Clinical Application in Magnetic Resonance Imaging
- Artificial Intelligence and Big Data Computing Programming / Big Data Computing
- Clinical Applications of Molecular Diagnostics in Healthcare
- Digital Imaging & PACS / Molecular and Functional Imaging: From Body System to Molecules
- Dissertation
- Epidemiology
- Genomic Technology and Functional Genomics
- Latest Advances in Computational Biology
- Machine Learning and Data Analytics
- Medical Artificial Intelligence and Data Analytics
- Molecular Technology in the Clinical Laboratory
- Probability and Stochastic Models
- Workshops on Advanced Molecular Diagnostic Technology



Other Requirements

- Complete the 1-credit Academic Integrity and Ethics (AIE) subject
- Complete the e-learning module on "Understanding China and the Hong Kong Special Administrative Region, P.R.C."

*Subject to change and for reference only. For details of the curriculum, please refer to Programme Requirement Document.

Programme Intended Learning Outcomes

Upon successful completion of the programme, students will be able to

1. acquire and critically apply advanced discipline knowledge and scholastic skills in broad range of professional contexts in medical data analytics.
2. apply critical analysis and problem-solving skills and formulate creative strategic solutions for complex situations relating to the students' professional development and practice.
3. demonstrate a higher level of professional competence to cope with the rapid changes in practice, make critical use of changing and emerging technologies for work, and deal with complex interdisciplinary issues.
4. develop skills to become socially responsible leaders in their professional area, demonstrating a critical awareness of current issues in local, national and global contexts, capable of dealing with complex issues and making responsible decisions, leading with integrity and pride for the benefit of society and a sustainable future, communicating effectively with diverse audiences and fostering effective and harmonious collaboration in an intercultural and/or interdisciplinary team.
5. develop analytical and research skills to critically evaluate complex information and arguments, make sound judgement and incorporate evidence-based practice in delivering service in healthcare or biomedical field.
6. demonstrate abilities to engage in continual professional development, reflect on their goals and purposes, refine their learning approaches, adapt to unfamiliar learning situations, and persevere through setbacks.

Programme Aims

This programme is offered within the Postgraduate Scheme in Health Technology, which aims to provide professionals in medical imaging, radiotherapy, medical laboratory science, health technology and others interested in health technology, with an opportunity to develop advanced levels of knowledge and skills in information technology and medical science.

Characteristics

Medical data science is a multidisciplinary field that combines medicine, data science, and computer science to analyze and interpret large amounts of medical data. With the rapid advancement in artificial intelligence, genomics and biomedical fields, personnel with a solid background in medical data analytics are in high demand. The curriculum of the MSc programme in Medical Data Science includes computing, molecular biology, genomics, and bioinformatics, which is designed to equip students with the knowledge and skills to effectively analyze and interpret complex medical data. Students will gain hands-on experience in working with large-scale healthcare datasets and learn how to apply advanced techniques to solve real-world healthcare challenges.

The MScMDS focuses on developing skills for

1. formulating biological and medical problems into computational problems;
2. integrating multimodal omics data (e.g., sequence, image and text) from diverse sources; and
3. developing efficient data analytic systems for medical applications such as modelling aetiology, predicting disease susceptibility and suggesting therapeutic strategies.

Large quantities of clinical and medical data are now collected in clinical settings and need to be analysed to improve healthcare services. However, the lack of capable personnel is a significant obstacle to healthcare advances using new technologies. MScMDS will fill this immense void in the healthcare sector.