Master of Science (MSc)

Biomedical Informatics

NUS
National University
of Singapore

Department of Biomedical Informatics
Yong Loo Lin School of Medicine

Overview

$\longrightarrow$ *MSc in Biomedical Informatics (BMI)*

NATIONAL UNIVERSITY OF SINGAPORE

National University of Singapore (NUS) is one of the world's leading universities, with over 40, 000 students across three campuses. By offering a distinctively Asian yet global experience, NUS is recognised for its breadth of academic programmes, experiential learning, entrepreneurship education and impactful research.

As we continue from strength to strength, we take pride in nurturing our students and equipping them with the necessary skills to be the leaders of tomorrow.

Established in 1905 to educate and train medical professionals in Singapore, the NUS Yong Loo Lin School of Medicine (NUS Medicine) is a leading medical educational and research institution in Asia.

Created to help prepare healthcare workers to succeed in an increasingly technological field, the Master of Science in Biomedical Informatics (MSc in BMI) is a postgraduate degree offering specialisations in **Analytics or Hospital Management.**

Overview

THRIVE IN THE TECHNOLOGICAL REVOLUTION

Be equipped with training in data visualisation, machine learning, and more in today's increasingly technological healthcare landscape.

GAIN EXPERIENCE WITH BIG DATA

Get access to real-time, desensitised healthcare data from actual institutional healthcare settings and utilise big data for validation in real clinical settings.

BE PREPARED FOR THE FUTURE OF HEALTHCARE

Keep your career opportunities open as more companies in the healthcare space increase their hiring rate.

GAIN EXPOSURE TO PRESTIGIOUS COMPANIES

Intern, participate in projects, and collaborate with international companies.

Rise of technology in healthcare

→ Why BMI?

- Digitalisation of healthcare through electronic health records

- Adoption of new technologies such as cloud computing, holomedicine and robotics

- Advancements in Machine Learning, Artificial Intelligence and Large Language Models
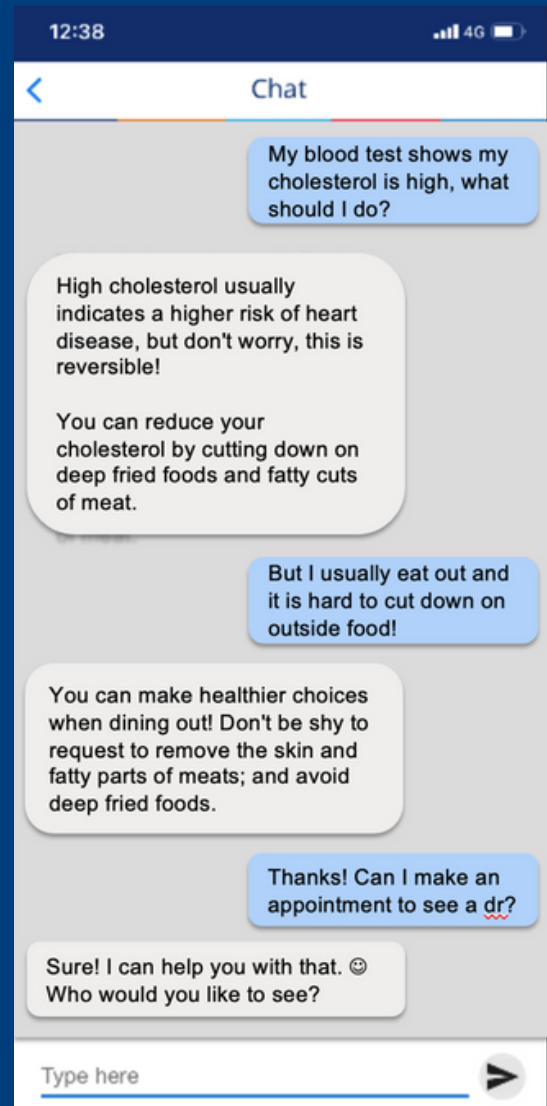
NUHS Chatbot: Implemented in 2023, patients can 'talk' with the NUHS Chatbot to input their blood pressure

Using HoloLens 2, a form of mixed reality (MR) technology to assist with surgeries

Thrive in the technological revolution

A MEDICAL CENTRE ATTRACTING TOP RESEARCHERS & CLINICIANS

PROXIMITY TO NUS COMPUTING & NUS ENGINEERING FACILITIES

ACCESS TO VAST COMPUTING RESOURCES

WORLD CLASS FACILITIES FOR RESEARCH

Elevating the Healthcare Sector through Digital Transformation

The coursework of the MSc in BMI introduces a significant pool of skilled workers into the healthcare sector.

CORE SKILLS

FACULTY

The MSc in BMI aims to impart to students a suite of core skills including:

- Evidence-based clinical decision making
- Machine learning
- Data visualisation
- Effective communication
- Strategic leadership
- Entrepreneurship

Renowned faculty members from NUS School of Computing (SOC), NUS Saw Swee Hock School of Public Health (SSHSPH) and the NUS Institute of Systems Science (ISS), who are subject matter experts in their respective domains, will teach the curriculum. Research fellows and associates in the Department of Biomedical Informatics will also support the delivery of curriculum content with their background in biomedical informatics research.

Analytics Specialisation

Students will be trained to reason, critically analyse and subsequently evaluate the effectiveness of clinical decision support systems, as well as to lead and implement strategic clinical innovations or projects.

WHO IS THE COURSE FOR?

Hospital Management Specialisation

Aimed at training students in various aspects of hospital work, such as the implementation of public health policies, evidence-based patient care and clinical decision support systems.

Junior Clinicians

The programme will cover advanced modules of the American Medical Informatics Association (AMIA) curriculum, as well as offer relevant exposure to the Information Technology (IT) industry through joint courses and workshops.

Non-Clinicians

This course is also applicable to non-clinicians with industry expertise and skills, for instance, computer scientists. It will introduce them to the healthcare informatics field through upskilling and contributing to the Singapore Government's vision of a Smart Nation.

COURSE FEATURES

CAREER PATHWAYS

Highly intensive collaborative curriculum with faculty from School of Computing, School of Public Health and Institute of Systems Science

Skilled resources and real-time desensitised healthcare data from trained clinicians in NUS Medicine

Hands-on internships with prestigious companies enable students to work on potential clinical applications with the goal of improving patient care

Big Data sourced from actual healthcare institutional settings (including primary care and community hospitals) provide students with real-world exposure that no other university in Singapore can offer

MSc in BMI graduates can explore career pathways in the healthcare and biomedical industries, including but not limited to:

- Chief Medical Informatics Officer
- Chief Innovation Officer
- Data Scientist
- Chief Strategy Officer
- Chief Data Officer
- Chief Technology Officer
- Biomedical Data Engineer
- Health Tech Innovator
- AI and Machine Learning Specialists
`
- Big Data Specialist
- Information Security Analyst
- Digital Transformation Lead
- Digital Transformation Specialists
- Internet of Things Specialist
- Fintech Engineers (Health Finance)
- DevOps Engineer
- Database and Network Professionals
- Specialist Medical Practitioners

Courses

Core Units
BMI5101 | Advanced Biomedical Informatics
BMI5111 | Capstone Project
BMI5207 | Medical Data and Data Processing
BMI5306 | Advanced Agile Project Management
IT5001 | Software Development Fundamentals

Analytics
BMI5102 | Health Sciences for Non-Clinicians *Not for clinicians
BMI5109 | Advanced Scientific Research Methods
BMI5110 | Molecular Informatics
BMI5206 | Advanced Human Factors Engineering
DL5102 | Digital Agility and Change Leadership
IT5003 | Data Structures and Algorithms
IT5006 | Fundamentals of Data Analytics
MDG5241 | Advanced Statistical Methods for Bioinformatics
SPH5409 | Qualitative Methods in Public Health
SPH6004 | Advanced Statistical Learning

Analytics/Hospital Management
BMI5102 | Health Sciences for Non-Clinicians *Not for clinicians
DL5102 | Digital Agility and Change Leadership
IT5006 | Fundamentals of Data Analytics
SPH6004 | Advanced Statistical Learning

Hospital Management
BMI5102 | Health Sciences for Non-Clinicians *Not for clinicians
BMI5106 | Clinical Decision Support Systems
BMI5107 | Advanced Evidence Based Patient Care
BMI5108 | Advanced Value Based Healthcare
BMI5201 | Advanced Clinical Data Systems
DL5102 | Digital Agility and Change Leadership
DL5201 | Strategic Thinking and Digital Foresight
DL5302 | Managing Digitalisation Complexity
IT5005 | Artificial Intelligence
IT5006 | Fundamentals of Data Analytics
MDG5248 | Ethics of Health Data and Artificial Intelligence
SPH5007 | Implementing Public Health Programmes and Policies
SPH5003 | Health Behaviour and Communication
SPH5401 | Health Economics and Financing
SPH5412 | Economic Methods in Health Technology Assessment
SPH5416 | Introduction to Integrated Care
SPH6004 | Advanced Statistical Learning

Admission Requirements

- Fresh graduates with M.B,B.S degree, Bachelor's (Hons) degree in Quantitative Sciences (e.g Mathematics, Applied Mathematics, Statistics and Physics) or Engineering or Computer Science or Business or Health Sciences related Discipline

- Candidates with other qualifications and experience may be considered on a case-by-case basis.

- Admission is on a competitive basis and candidates with relevant industry experience will be considered favourably

- International applicants are to submit TOEFL or IELTS test scores as evidence to demonstrate their language ability and readiness for graduate study. Candidates may be required to sit for other tests as prescribed by the School.

- The minimum TOEFL scores for Internet Based Test (IBT) is 85; or IELTS score of 6.0.

- The TOEFL/IELTS scores are valid for two (2) years from the test date and should not have expired at the point of application; expired scores will not be considered for the application.

Programme Structure and Candidature

The programme is offered on a full-time or part-time basis with the option to specialise in either Analytics of Hospital Management. The programme has one intake per academic year, with candidates joining in August.

To graduate from the programme, students are required to read and pass five core modules and five elective modules.

Application

Tuition Fee
S$52 451
(subject to
prevailing GST)

Application Period
1 Oct - 31 Jan
(Local and
International)

Click here to apply now

Contact Us

For more information

NUS Department of Biomedical Informatics

✉ nusdbmi@nus.edu.sg

🌐 https://medicine.nus.edu.sg/dbmi/

📍 1E Kent Ridge Road
Level 8, NUHS Tower Block
Singapore 119228