

MASTER OF SCIENCE IN **APPLIED BIOMEDICINE**



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Welcome to the Master's Programme in Applied Biomedicine, where we focus on practical applications of biomedicine. Our programme has three specializations: Infectious Diseases Management, Vaccinology and Immunotherapy, and Drug Discovery and Development. We offer unique features, such as core courses covering leadership in biomedicine and bio-innovation, and a multidisciplinary team of educators.

Our course is the first of its kind in Asia and has a critical role to play in light of the recent pandemic and future healthcare crises. MSc in Applied Biomedicine equips students with skills to combat emerging infectious diseases, develop vaccines, immunotherapies, and design drugs. We welcome international students with a life science, bioengineering, or medical Bachelor's degree, and working professionals in local healthcare, pharmaceutical, biotechnology, and health-related industries. Our programme provides a supportive and collaborative learning environment, with faculty members who are experts in their fields. We prepare students to be effective leaders and innovators in biomedicine, by equipping them with the necessary tools to succeed in their chosen field and make a difference in the world.

Join us for an exceptional opportunity to upgrade your skills and advance your career. We look forward to welcoming you to our programme and supporting you on your journey.

A/Prof Tan Shyong Wei, Kevin
Programme Director
MSc (Applied Biomedicine)

Created to help prepare the future of healthcare workers to succeed in an increasingly technologically pertinent field, the Master of Science in Applied Biomedicine (MSc-ABM) seeks to develop students in their critical and analytical thinking in the complex and evolving healthcare landscape; training them to be resourceful and adaptable independent learners and leaders in the biomedical workforce. The degree also aims to impart the following skill sets and knowledge to the students.

- In-depth and updated specialist knowledge and technologies in biomedicine
- Ability to apply biomedical knowledge to practise
- Ability to formulate a hypothesis and design a scientifically sound project

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 gives its students the opportunity not only to excel academically, but also to grow socially. NUS is recognised for its breadth of academic programmes, experiential learning, entrepreneurship education and impactful research. As we continue to grow from strength to strength, we take pride in nurturing our students and equipping them with the necessary skills to be the leaders of tomorrow.

YONG LOO LIN SCHOOL OF MEDICINE (NUSMED)

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

MASTER OF SCIENCE IN APPLIED BIOMEDICINE (MSC-ABM)

The MSc in Applied Biomedicine programme is a 1 year (full-time) or 2 years (part-time) degree, comprising 40 Units of coursework with 3 specialisations in Vaccinology and Immunotherapy, Infectious Diseases Management or Drug Discovery and Development.

A unique feature of the MSc-ABM is that it will be an integrated master's programme on biomedical topics critical to the post-pandemic scientific community. We will leverage on Singapore's lessons and successes from the pandemic to add new and unique perspectives to the programme. The bio-innovation and leadership courses also adds unique advantages to our programme, and prepares our candidates to be agile, enterprising with management potential.






Get more from an integrated Master's Degree programme focused on biomedical topics critical to the post-pandemic scientific community.



Prepare to be an agile and enterprising healthcare talent with good management potential, through the programme's bio-innovation and leadership courses.



Leverage on Singapore's lessons and successes in managing the COVID-19 pandemic, which add new and unique perspectives to the programme.

PROGRAMME FEATURES:

- Unique innovation and leadership courses
- 4 compulsory core courses : Leadership in Biomedicine, Advanced Biostatistics for Research, Biomedical Innovation & Enterprise, and Advanced Biomedical Informatics
- 3 specialisation options: Vaccinology and Immunotherapy; Drug Discovery and Development; and Infectious Diseases Management

CORE COURSES

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

■ Leadership in Biomedicine

Leadership is fundamental to the success of individuals and organisations. As you progress in your biomedicine career, you will have to lead individuals, teams and organisations. This course prepares you to lead, by equipping you with principles, skills and practices of leadership.

■ Advanced Biostatistics for Research

This course serves as a concept-based introduction to biostatistics, or to the use of numerical technique to extract information from data and facts. It is aimed at students, researchers and healthcare professionals who wish to learn modern research methods. The learning objectives are to communicate scientific results, develop tools to investigate the inherent variability introduced by sampling and quantify uncertainty before progressing to the process of making inference about the population. Using

computer software such as SPSS, the concepts and the statistical methods will be illustrated based on the real life data arising from selected scientific and medical studies.

■ Biomedical Innovation & Enterprise

This course will furnish students with a thorough understanding of a bio-venture from research and development stage to commercialisation stage, covering all relevant aspects and steps from invention to innovation and founding a new bio-business. The team of lecturers is complemented by high profile entrepreneurs and experts who will be sharing their personal experiences and stories. The course will guide the students through the process of generating an idea and developing it to a business pitch.

■ Advanced Biomedical Informatics

This course covers both the fundamental and advanced principles of biomedical informatics, the field concerned with the acquisition, storage, and use of information in health and biomedicine. The course begins with a basic introduction to health and biomedicine as well as computing concepts and theories including ethics and legal aspects and then moves on to advanced concepts in these topics.

By arming students with the necessary skills and knowledge, the MSc-ABM will provide a steady supply of skilled professionals to the healthcare and biopharmaceutical industries in particular research institutes, ministries, and hospitals where the disciplines of infectious diseases management, vaccine development/ immunotherapy and drug discovery/ development are critical.

ACADEMIC COMMITTEE



Prof Tan Shyong Wei Kevin
Programme Director



Prof Zhang Yongliang
Co-Programme Director



Dr Sham Lok-To (Chris)
Capstone Project coordinator



Dr Jaishree Tripathi
Infectious Diseases
Management Specialisation
Coordinator



Dr Png Chin Wen
Vaccinology and Immunotherapy
Specialisation Coordinator



Prof Gautam Sethi
Drug Discovery and Development
Specialisation Coordinator,
Capstone Project
Co-coordinator



Dr Volker Patzel
Biomedical Innovation
& Enterprise Course Coordinator

WHO IS THE PROGRAMME FOR?

Our MSc in ABM is designed for local and international students with a Bachelor's degree in a life science discipline, bioengineering or medicine. It also caters to working professionals in the local healthcare, pharmaceutical, biotechnology and health-related industries who are seeking to upgrade their skill sets for career advancement.

WHAT MAKES OUR PROGRAMME UNIQUE?

The MSc in ABM is a uniquely integrated programme that responds to the needs of the post-pandemic scientific community. Drawing on Singapore's valuable lessons and triumphs from the pandemic, we have incorporated these insights into our curriculum to offer novel perspectives and learning experiences.

A standout feature of our programme is the bio-innovation and leadership courses. These are designed to equip students with a potent mix of technical acumen and leadership potential, enabling them to be agile, enterprising, and prepared for management roles in a rapidly evolving field.

- Get more from an integrated Master's Degree programme focused on biomedical topics critical to the post-pandemic scientific community.
- Prepare to be an agile and enterprising healthcare talent with good management potential, through the programme's bio-innovation and leadership courses.
- Leverage on Singapore's lessons and successes in managing the COVID-19 pandemic, which add new and unique perspectives to the programme.



CAREER OPPORTUNITIES

Our MSc-ABM graduates are prepared to excel in a diverse range of roles. This unique blend of instruction and innovation sets our programme apart in the domain of applied biomedicine. Graduates will be equipped to pursue roles such as:

- Medical technologists
- Biochemists
- Research scientists
- Toxicologists
- Microbiologists
- Regulatory specialists

MSc-ABM graduates will also be well-prepared to pursue management and other leadership positions in the biomedical field.

ADMISSION REQUIREMENTS

Applicants must fulfil the following requirements in order to be eligible for enrolment in the programme. However please note that selection of candidates is based on a competitive basis and meeting the minimum requirements does not guarantee automatic admission into the programme.

- Graduates with Bachelor (Hons) degrees in M.B.B.S., Life Sciences (e.g. Biochemistry, Cell Biology and Molecular Biology) or Bioengineering or Biotechnology or health sciences related discipline.
- Candidates with other qualifications and relevant industrial experience may be considered on a case-by-case basis, subject to approval by the selection committee.
- International applicants who graduated from universities where English is not the main medium of communication are required to demonstrate their English proficiency by possessing a minimum TOEFL (Test of English as a Foreign Language) score of 85 (Internet-based) or a minimum IELTS (International English Language Testing System) Academic score of 6.0. The TOEFL/IELTS scores must be 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.
- Candidates should submit a Statement of Intent of not more than 300 words and upload it as a document in Word or PDF format. The statement should showcase your academic strength, research interests, motivation to study and long-term development goals.
- Candidates should also submit a Curriculum Vitae (CV) which provides an overview of your relevant experience, skills and qualifications and accomplishments.

PROGRAMME STRUCTURE AND CANDIDATURE

The MSc in Applied Biomedicine programme is a 1 year (full-time) or 2 years (part-time) degree, comprising 40 Units of coursework with 3 specialisations in Vaccinology and Immunotherapy, Infectious Diseases Management or Drug Discovery and Development.

- 4 compulsory core courses (12 Units) and;
- 5 courses from the Elective Courses list for each specialisation (20 Units)
- Capstone project (8 Units)

To graduate from the programme, students must read and pass a total of 40 Units, comprising:

- 20 Units of Core/Essential Courses (including the Capstone Project), and
- 20 Units of Elective Courses (all from one track for specialisation, or across two or more tracks without specialisation)

FEES

Tuition Fee
S\$54,936

(*inclusive of Goods & Services Tax (GST))
Acceptance fee: \$5,000 including GST

Application Period
1 Jan to 30 Apr 2024

Financial Aid:

- All Singaporeans and Singapore PRs will receive a 10% tuition fee rebate.
- All NUS alumni will receive a 15% tuition fee rebate.



Yong Loo Lin
School of Medicine

Division of Graduate Studies
Yong Loo Lin School of Medicine
National University of Singapore



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