01 Dean’s Foreword
02 Science: Driver of Innovation
03 Grooming Future-Ready Science Graduates
04 Trending Industries
05 What Industry Leaders Say
08 Discipline-Based Careers
18 General Professional Careers
20 Exciting Careers
22 Continual Education
23 Transformation in Career Pathways
I am delighted to invite you to study this careers handbook as you embark on your journey with us in our Science degree programme. It is important for you to start and plan ahead to consider your future career options from day one. Through this handbook, I hope you will not only have a better understanding and appreciation of the value of a Science education, which is becoming increasingly more important in today’s innovation-driven and borderless economy, but it will also open your mind to the many possibilities and options you may have.

Although our programmes are designed to train you to meet the complex needs of the future, you will need to play an equally active part in your learning and development in the next few years that you are with us. The future workplace will not be based on what you know but on how you think. This is why a Science education, which hones and develops your thinking and problem-solving skills, will always be relevant. To continue to stay relevant, future workers must also have the passion for continuous and lifelong learning to keep up with the rapid changes in technology and in the globally connected environment. You would need to be able to adapt to change, be resilient and agile, and work collaboratively in a team setting.

Our NUS Transformative Science Education is not just about deep domain knowledge and transferrable skills sets acquired through your Science training. It also encompasses other aspects of soft skills that you will pick up through your learning process, including the choices you make in the modules you take and the other experiences you go through. Choose your pathways carefully based on your interest and passion. At the same time, do keep an open mind to venture outside your comfort zones to pick up skills sets that you may not already have but can acquire. By embracing our Transformative Science Education, you will enjoy a holistic educational experience, which will maximise your potential and equip you to be future-ready and employable in many organisations. We would have then prepared you well, not just for a career for life but a life of careers.

Since 1929, we have produced scientists, researchers, entrepreneurs and leaders in many diverse industries who drive Singapore’s growth. Many of our alumni have made important contributions in their respective fields. We are proud to feature some of our young and illustrious alumni in this handbook. While not exhaustive, I trust you will find the employers’ comments and our alumni’s reflections informative and inspiring.

Let me take this opportunity to welcome you as a member of our Science family and I wish you a fulfilling journey with us.

Professor Shen Zuowei
Dean, Faculty of Science
SCIENCE: DRIVER OF INNOVATION

2000 & beyond
Knowledge-Driven Economy

SCIENCE
& Engineering Degrees

1960s & 1970s
Developing Economy
Engineering Degree

1980s & 1990s
Underdeveloped Economy
Any Degree Will Do
Competency Training: Transformative Science Education
Our rigorous and flexible curriculum will equip you with specialised domain knowledge and transferrable skills that are important for the workplace and the future. We offer you myriad choices, including double degrees, double majors, joint degrees, concurrent bachelor’s and master’s degrees, minors, multidisciplinary and cross-faculty programmes, as well as special programmes, undergraduate research programmes and Study Abroad Programmes which will broaden your social and global outlook. You will therefore have an excellent foundation to start your career in today’s globalised workplace.

Industry Engagement: Career Events and Alumni Networking
We regularly organise the Industry Sharing Series for you to engage industry practitioners in high impact sectors as part of your professional development to prepare you for the workplace. Industry experts will share their insights on career opportunities in their respective fields. We also organise recruitment talks where you can meet hiring managers on career prospects. Through activities like the Science Alumni-Student Networking Evening you will meet and learn from our alumni who have a wealth of experience across diverse industries and companies.

Experiential Learning: Career Readiness Programmes
These include Career Preparation programmes for freshmen to plan for their careers and the Undergraduate Professional Internship Programme (UPIP). UPIP allows you to earn modular credits through structured internships which provide on-the-job training at renowned local and international organisations. Through UPIP, you can put classroom learning into practice in a corporate setting and understand business etiquette through networking opportunities with industry players. You will also pick up job-seeking skills like resume writing and interview skills. When you graduate, you will be ready for the corporate world. For more information, visit http://science.nus.edu.sg/students/upip.

Centre for Future-ready Graduates
The Centre prepares you for your career through career fairs, industry talks and leadership development programmes. For more information, visit http://www.nus.edu.sg/cfg/.
Our graduates are employed in various high growth and high impact industries. Many of these industries are key pillars driving Singapore's economy.

<table>
<thead>
<tr>
<th>Clean Technology</th>
<th>Consumer Businesses</th>
<th>Education</th>
<th>Financial Services</th>
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| • CleanTech includes clean energy, water and environment  
  • 18,000 jobs generated in 2015  
  • Jobs in research & development, sales and marketing, supply chain management, product development and system integration in areas like smart grids, solar energy, green buildings, energy efficiency, water treatment, waste management and pollution control | • Expected to create 2,400 jobs from 2014 to 2016  
  • Jobs in research & development, branding and marketing, sales, supply chain, consumer insights and analytics in household and personal care companies, food, beverage and nutrition companies, specialty ingredient companies and flavours and fragrances houses | • Over 33,000 education officers in over 360 schools for primary, secondary and pre-university education as of end 2015  
  • Other jobs include allied educators and executive and administration staff | • Jobs in retail and commercial banking in roles such as corporate transaction banking and trade finance  
  • Jobs in re/insurance in roles such as actuary, underwriting, and brokerage  
  • Jobs in wealth and asset management in roles such as investment research and relationship management  
  • Jobs in risk management and compliance  
  • Jobs in financial technology in roles such as data and business analytics, and cyber security |

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<tr>
<th>InfoComm Technologies</th>
<th>Media and Digital Entertainment</th>
<th>Research &amp; Development</th>
<th>Safety and Security</th>
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| • Almost 15,000 jobs, expected to double by 2017  
  • Jobs in data and cyber security, project management, market research, big data, network and infrastructure, and emerging technologies such as cloud computing | • Expected to generate 10,000 jobs by 2018  
  • Jobs in sectors like games, broadcast and animation, covering areas like content creation, distribution and platforms and marketing | • Jobs in the universities and research institutes in technology domains of advanced manufacturing and engineering, health and biomedical sciences, services and the digital economy, and urban solutions and sustainability | • Jobs related to development and deployment of high-tech security solutions and equipment, including sensors, biometrics, analytics, command and control, communications, systems design and integration of security systems |

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<th>Biomedical Sciences</th>
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| • The biomedical manufacturing sector employed close to 16,800 people in 2014  
  • The pharmaceutical manufacturing industry has created over 6,000 jobs. Over the next 3 - 4 years, the biologics manufacturing industry is expected to create another 700 to 1,000 jobs  
  • Jobs in manufacturing, research & development, headquarter activities such as sales and marketing, supply chain management, medical and regulatory affairs, quality management and product development with pharmaceutical companies |

Career Prospects

Technologies and society undergo many changes. However, the fundamental scientific skills of critical and analytical thinking, and problem-solving continue to be relevant in any workplace. Well-equipped with knowledge-based and transferrable skills, our graduates are gainfully employed in the public and private sectors, in discipline-based or general professional careers. Our Faculty has produced leaders and professionals in almost all fields. Many of our alumni excel and contribute significantly to the advancement of our society and economy, as validated by industry leaders. Some of them have achieved outstanding professional and personal accomplishments.

What Industry Leaders Say

“‘We value our Science graduates’ strengths in analytical thinking and resourcefulness. With their versatility, they undertake roles ranging from research and statistical analysis to data analytics, corporate planning and human resources. They also serve at the frontline, implementing housing policies and engaging residents in our heartlands. Many of them have grown with us and have taken up leadership positions.’’” - Dr Cheong Koon Hean, Chief Executive Officer, Housing & Development Board

“NUS Science graduates are well-equipped to handle wide-ranging work challenges. Some are in the generalist track, overseeing the Housing, MediShield, and Home Protection Schemes, and handling national projects. They also work in specialised departments in statistics, business intelligence and data analytics. They have performed well, demonstrating leadership qualities, zest and commitment. Some have progressed to leadership positions.” - Ng Chee Peng, Chief Executive Officer, Central Provident Fund Board

“NUS Science graduates have the versatility to adapt to a changing work environment to support the organisation’s goals. Their training provides them with good domain knowledge and they produce high quality work.” - Dr Lee Song Choon, Deputy Director, Life Sciences Department, Science Centre Singapore

“NUS Science graduates majoring in Chemistry and Mathematics play key roles in our port operations as port chemists and hydrographers, as well as undertake strategic planning and economic analysis to help ensure we remain as one of the world’s busiest maritime hubs. They are also involved in the planning and design of our future mega-port in Tuas, which will be more intelligent, automated and efficient. As an active member of the International Maritime Organisation, our officers are also regularly involved in the technical work of promoting safe, efficient and sustainable shipping.” - Andrew Tan, Chief Executive, Maritime and Port Authority of Singapore

“Employees who can grasp and analyse problems or opportunities, identify contributing causes and synthesise effective solutions, are a valuable asset. NUS Science graduates are confident, analytical and smart. They can apply their knowledge at the workplace with minimal supervision. They are also independent and resourceful, and can solve workplace issues, individually and in teams.” - Kwan Yew Huat, Managing Director, Pharmaforte Singapore Pte Ltd

“NUS’ Science graduates have the foundation to understand natural phenomena, a rigorous approach to problem-solving and the confidence to venture into the unexplored and the unknown. They have distinguished themselves in diverse areas including materials, lasers, optics, chemical defence, information security, artificial intelligence and signal processing. Many have achieved breakthroughs which rival the best in the world, ultimately making a difference to the defence and security of our nation.” - Quek Gim Pew, Chief Executive Officer, DSO National Laboratories
“We look for outstanding graduates with well-rounded backgrounds and personalities, as well as a track record of excellence. We have NUS graduates from Chemistry, Statistics, Applied Mathematics and Quantitative Finance. They are serving in roles that cut across functions including financial regulation, risk management and corporate development. They are detailed, meticulous and analytical. They have an inquisitive mind, good research techniques and a structured approach towards problem-solving. They also possess a great capacity to learn.” - Luz Foo, Executive Director, Human Resource Department, Monetary Authority of Singapore

“NUS Science graduates display an intelligent curiosity and a desire to excel.” - Moira Roberts, Head of Human Resources Singapore, UBS AG

“Science graduates are highly valued by employers for their deep scientific knowledge and problem-solving skills. NUS Science graduates have a solid foundation in their specialisation and are highly competent, always pushing the frontiers of science. They are pivotal in many areas, from specialised laboratory roles to broad-based management and operational roles. They possess commendable work ethics, with a high level of commitment, self-drive, resilience and professionalism. They can quickly integrate into our fast-paced and challenging environment. Therefore, they have many career advancement opportunities, with many progressing to senior management level.” - Liak Teng Lit, Group Chief Executive Officer, Alexandra Health System

“Many NUS Science graduates are responsible for managing our nature reserves, gardens, parks and verdant streetscapes, playing a part in achieving Singapore’s vision of a City in a Garden. They exhibit a strong foundation in the natural sciences and have a passion for the environment, made possible by the all-rounded curriculum in biology and environmental science.” - Kenneth Er, Chief Executive Officer, National Parks Board

“A significant number of our staff are from NUS’ Faculty of Science. Besides relevant content knowledge on the environment, they have life-skills which enable them to be effective in multidisciplinary areas. This includes research, operations, policy-making, regulation, public engagement and corporate development. Their evidence-based scientific approach puts them in good stead to address different challenges. With their structured and systematic thinking, ability to frame issues, resourcefulness, independent learning and their on-going quest for outcomes, they can readily take on varied roles in our rapidly evolving operating environment.” - Ronnie Tay, Chief Executive Officer, National Environment Agency

“Science trains the mind - to be analytical, creative and decisive. We have a large number of Science graduates at all levels, from researchers to team leaders to institute directors. Science graduates add value through innovation and by addressing social and global challenges. Great scientists break new ground and bring breakthrough technologies to the market. We look for people who dare to dream and to impact lives positively.” - Professor Andy Hor, former Executive Director, Institute of Materials Research & Engineering, Agency for Science, Technology and Research

“NUS Science graduates are widely exposed to overseas programmes. They are well-equipped with the skills to address real-world issues. Their strong analytical skills add breadth and depth to our intellectual capital, while furthering our vision of research to improve lives.” - Professor Yu Hao, Executive Director, Temasek Life Sciences Laboratory
I Will Be **Future-Ready**

- Scientifically Proficient
- Lifelong Learner
- Global Minded
- Effective Communicator
- Analytical & Creative Thinker
- Versatile
- IT Savvy
- Strong Team Contributor
- Enterprising
- Resourceful
- Systematic
- Problem Solver
- Adaptable
- Innovative
- Resilient

Lionel Khoo  
*Year 2, Life Sciences*

Bernice Lee  
*Year 2, Life Sciences*
Discipline-Based Careers

EDUCATION Some Science graduates choose to enter the teaching profession. They have educated generations of students and enjoy career progression as educators. Through their keen interest to impart knowledge, they help to inspire and nurture the next generation of leaders.

Rayston Leong
Chemistry Teacher
Anglo-Chinese Junior College
Ministry of Education
BSc (Hons) in Chemistry, specialisation in Environment & Energy (2014)
Joint Minor in Environmental Chemistry

Rayston started teaching at Anglo-Chinese Junior College in July 2015, where he prepares lessons, conducts lectures and engages students in classroom teaching and collaborative group work.

“I knew teaching was the path for me. I chose NUS Science as the quality of education is world-class. The conceptual and procedural skills as well as domain knowledge I acquired in Chemistry equipped me to set higher order thinking questions and to teach H2 Chemistry and H3 Pharmaceutical Chemistry.”

Resma Bte Gulzar Mohd
Subject Head, Biology
Anderson Junior College
Ministry of Education
BSc in Biology (2003)
NUS-Australian National University Joint MSc in Science Communication (2011)

Resma plans and implements the Biology curriculum at Anderson Junior College. Previously, as a Curriculum Development Officer at the Ministry of Education, she worked on aligning syllabi to global and local industry trends.

“With my Science background, I learnt to always look for ways to improve teaching and learning. I also integrated more experiential learning, through field trips to Bishan Park and biodiversity trails to Sungei Buloh.”

Dr Hon Chiew Weng
Principal, Hwa Chong Institution
BSc in Physics (1981)
Master of Education (1991), NUS
Doctor of Education (2008), University of Western Australia

Dr Hon started out as a Physics teacher but realised while completing his Masters degree that his passion lay in Educational Psychology and school management. He became the Principal of Hwa Chong Institution in 2010.

“My Science education provided valuable insights on the importance of research and problem-solving to develop young minds in critical thinking and creativity.”
The Faculty of Science is one of the largest faculties in NUS, with six departments, namely Biological Sciences, Chemistry, Mathematics, Pharmacy, Physics, and Statistics and Applied Probability. Each of our departments develops quality courses that teach subject-based skills relevant to the needs of specific businesses and industries. Our multidisciplinary and practice-based curriculum grooms specialists with depth and breadth of knowledge and skills for their respective fields. Armed with deep domain expertise, our graduates are employed in various areas of specialty, across diverse disciplines. As the convergence of different sectors becomes more prevalent in an innovation-driven economy, our graduates are also becoming more conversant in two or more disciplines.

CHEMISTRY  The NUS Chemistry programme offers you a broad-based curriculum with many opportunities for experimental studies and the learning of the latter’s inter-dependence with theoretical work. You can also choose to specialise in Materials Chemistry, Medicinal Chemistry or Environment & Energy, as you advance further in your study.

Through the programme, you will acquire a strong foundation in the core principles and topics of the four key branches of Chemistry: Analytical, Inorganic, Organic and Physical Chemistry, as well as advanced knowledge in your chosen area of specialisation. Upon graduation, you will possess deep domain knowledge, which is vital for your career in related industries and sectors. Having also acquired valuable skills in numeracy, research and analysis, as well as organisational skills and computer literacy, you will have the versatility to learn new trades and adapt to a variety of jobs within or outside the industry.

Examples of Industries / Sectors
Biochemicals
Chemicals
Engineering
Government Agencies
Manufacturing
Petroleum
Pharmaceuticals
Research & Development
Specialty Chemicals

Possible Career Opportunities
Chemical Engineer
Environmental Protection Officer
Forensic Scientist
Materials Scientist
Patent Officer
Quality Control Chemist
Research Chemist
Scientific Officer
Waste Water Specialist
Water Treatment Specialist

Kelvin Ling jiehan
Sales Manager
Oiltanking Singapore Ltd
BSc (Hons) in Chemistry (2011); Minor in Management

Kelvin maintains client relationships, negotiates storage and service agreements, reviews market developments and customer portfolios and works with other departments to improve the terminal’s performance.

“The versatility of Science training enables me to adapt and multi-task in areas beyond my expertise. This is crucial to navigate the complex and fast-paced world of business.”

Dr Sanjay C Kuttan
Director and Country Manager, Clean Technology Centre
DNV GL – Energy
BSc (Hons) in Biochemistry (1988)
PhD in Pharmacology (1993), NUS

Dr Kuttan’s experience in the private and public sectors ranges from research to business development and technical roles. Presently, he manages a team of engineering consultants to create a sustainable future by providing technical and policy advice to problems that threaten life, property and the environment.

“The scientific training of logically disaggregating and breaking down complex issues into discrete parts helped me to analyse problems. This training of the mind has been useful throughout my career.”
Hui Wei Bin
Senior Executive (Food Safety & Quality)
NTUC FairPrice
BAppSc (Hons) in Food Science & Technology (2011)

Wei Bin is responsible for quality assurance of NTUC FairPrice’s food products.

“My course is relevant to my work in food safety, which contributes to the well-being of consumers.”

Daniel Chia
Manager, Human Resources
Nestlé Singapore Pte Ltd
BAppSc in Food Science & Technology (2003)

Daniel heads the Talent Management, Learning & Training team. He is also the HR Business partner for Retail Sales for Nestlé Professional and Wyeth Commercial.

“The Food Science & Technology programme is unique as it combines various subjects and on-the-job training experiences comprising laboratory work, industrial attachments and overseas exposure. Hence, I acquired the adaptability to face workplace complexities and diversity.”
**LIFE SCIENCES**

NUS’ Life Sciences programme is an interdisciplinary course jointly taught by six departments across the Faculty of Science and Yong Loo Lin School of Medicine, covering Biomedical Science, Environmental Biology and Molecular and Cell Biology. You can choose to specialise in any of these areas as you advance further in your studies. Upon completion of the programme, you will acquire a solid foundation in the fundamental concepts vital to all areas of Life Sciences as well as the latest laboratory and research techniques relevant to the rapidly changing world of biosciences. Besides the ability to collect and critically analyse data, integrate information and concepts, you will also pick up transferrable skills including presentations, scientific report writing, the ability to work in a team and effective time management.

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**Examples of Industries / Sectors**
- Agriculture
- Biomedical
- Biotechnology
- Environmental Technology
- Food Production
- Government Agencies
- Healthcare & Medical
- Horticulture-related Agencies
- Pharmaceuticals
- Research & Scientific Services

**Possible Career Opportunities**
- Aquatic Biologist
- Biotechnologist
- Clinical Analyst
- Clinical Trial Coordinator
- Conservation Biologist
- DNA Profiling Scientist
- Forensic Scientist
- Medical Technologist
- Parks Manager
- Process Engineer
- Public Health Officer
- Quality Control Specialist

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**Riane Brittany Francisco**

Manager, Projects (Conservation)  
National Parks Board  
BSc in Life Sciences (2012); Minor in Geosciences

**Riane** surveys wildlife populations such as monkeys, civet cats and shorebirds in urban and forested areas. She is also involved in conservation projects at Sungei Buloh Wetlands Reserve.

“Sungei Buloh is a living classroom which strengthened the foundational knowledge gained from my biodiversity course on local fauna and flora and conservation issues. I can also better understand the water systems in mangrove areas.”

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**Daryl Lee Deming**

Key Account Manager (Virology)  
Bristol-Myers Squibb  
BSc (Hons) in Life Sciences, concentration in Biomedical Sciences (2011)  
Student Exchange Programme at University of Toronto

**Daryl** partners local healthcare practitioners and institutions to improve access to innovative medications that help patients prevail against serious diseases.

“My course helped me understand the impact of medical intervention on diseases and equipped me with communication skills to engage diverse stakeholders. This enables me to discover insights and deliver value to the local healthcare community and pharmaceutical companies.”

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**Dr Neo Mei Lin**

Research Fellow, Tropical Marine Science Institute, NUS  
BSc (Hons) in Life Sciences, concentration in Biology (2009)  
Undergraduate Research Opportunities Programme in Science  
PhD in Marine Biology (2013), NUS

**Dr Neo** does research in marine biology and conservation. Her job requires her to investigate the local populations of giant clams.

“My Science training equipped me with the skills to shape my research ideas, decide on a line of inquiry and execute experiments. My experience in the Undergraduate Research Opportunities Programme in Science opened up a new dimension to studying organisms and ecosystems. This cemented my decision to pursue an academic career in marine biology.”
The NUS Mathematics Department offers you a wide range of modules and a broad spectrum of mathematical research activities, some multidisciplinary in nature, in the areas of Pure Mathematics, Applied Mathematics and Quantitative Finance.

You can pursue an undergraduate degree programme in one of these areas. In the study of Applied Mathematics, you can also choose to specialise in either Mathematical Modelling and Data Analytics or Operations Research and Financial Mathematics as you advance further in your studies. Upon graduation, you will be competent in dealing with abstract concepts, modelling physical and social phenomena, designing algorithms, analysing and interpreting data, as well as formulating solutions methodically. You will also acquire transferrable skills such as logical reasoning, communications, presentation and time management. The knowledge and skills you gain can be put to good use in planning and forecasting work, particularly in the fields of science, technology and commerce.

Dr Zenton Goh
CEO, Cadi Scientific Pte Ltd
BSc (Hons) in Mathematics (1992)
PhD in Physics (2000), NUS

Dr Goh’s company specialises in wireless sensing and tracking devices for the healthcare sector. Its award-winning flagship product, SmartSense™ uses radio frequency identification technology for real-time location tracking of patients, hospital equipment and contact tracing. SmartSense™ is deployed in Singapore’s largest hospitals and healthcare institutions throughout Asia.

“My Science training equipped me with useful life skills such as resilience, adaptability, effective stakeholder communications and business acumen. This enabled me to tap on the growing healthcare sector to develop our breakthrough technologies which improve hospitals’ productivity.”

Benny Chuen De Wei
Investment Dealer
Aberdeen Asset Management
BSc (Hons) in Applied Mathematics (2013)
2nd Major in Management

Benny executes trades and performs cost, liquidity and performance analyses.

“In Applied Mathematics, I learnt optimisation, algorithms, probability and modelling. As my job involves seeking the best execution of trades for clients, the knowledge and skills picked up during my four years laid a solid foundation which enables me to stay sharp and responsive to clients’ requirements.”
PHARMACY  The NUS Pharmacy Department, being the sole provider of university-level pharmacy education in Singapore, educates and trains pharmacists for the local healthcare and pharmaceutical sectors. Through its theme-based and multidisciplinary curriculum, you will acquire knowledge and skills that are relevant to the preparation of drug substances from natural and synthetic sources to suitable and convenient forms for distribution, and management of diseases. You will also learn how to apply the knowledge and skills to provide quality care for patients through experiential participation in pre-employment clinical training and internship programmes. Upon graduation, you can register with the Singapore Pharmacy Council and become a licensed pharmacist. You also have the flexibility to opt for careers in non-patient care domains as an academic pharmacist, industrial pharmacist or as a regulatory pharmacist in pharmaceutical- and healthcare-related industries or sectors.

Examples of Industries / Sectors
Patient-Care Practice
- Community Pharmacies
- Healthcare Services
- Polyclinics
- Hospitals

Non Patient-Care Areas
- Clinical Research
- Government Agencies
- Health Product Development
- Health Product Regulation
- Health Product Research
- Pharmaceutical Manufacturing
- Sales & Marketing in Pharmaceuticals

Possible Career Opportunities
Patient-Care Practice
- Pharmacist

Non Patient-Care Areas
- Clinical Research Coordinator
- Quality Assurance Scientist
- Regulatory Specialist
- Research Associate
- Sales & Marketing Executive

(Opposition positions in Non Patient-Care Areas may also require you to be a registered pharmacist with the Singapore Pharmacy Council.)

Ong Kheng Yong
Pharmacist
Singapore General Hospital
BSc in Pharmacy (Hons) (2013)
Undergraduate Research Opportunities Programme in Science

Kheng Yong dispenses prescriptions and ensures safe, effective and cost-effective use of medications for patients. He has taken on enhanced responsibilities in providing clinical services as well as in research and education.

“My education equipped me with specialised knowledge as well as soft skills, which enable me to communicate with patients and healthcare providers. The Undergraduate Research Opportunities Programme in Science improved my research and literature review skills, allowing me to review the latest evidence in medicine and pharmacotherapy and apply it to my practice.”

Png Yong Koh
Vice President (Pharmaceuticals)
LF Asia Distribution
BSc in Pharmacy (Hons) (1987)

Yong Koh oversees the balance sheet of the company’s pharmaceutical division. He worked as a hospital and retail pharmacist before joining the pharmaceutical industry.

“The broad-based and versatile Pharmacy curriculum allowed me to pursue rewarding careers in the pharmaceutical industry as well as in hospitals and community pharmacies. The domain knowledge in pharmaceutical sciences, anatomy, microbiology, pharmacology, biostatistics and pharmacy law was very relevant in my varied roles over the years which included marketing management, training, regulatory affairs and product management.”
The NUS Physics programme provides you a solid foundation covering core topics such as Atomic and Nuclear Physics, Electromagnetism, Nanophysics, Quantum Mechanics, Relativity, Condensed Matter Physics, Thermodynamics and relevant mathematical methods. You can also choose to specialise in either Astrophysics or Nanophysics as you advance further in your study. Through the programme, you will gain sound practical knowledge in the use of technical equipment for planning and executing experiments, advanced numeracy and mathematical literacy, as well as good reasoning skills. Upon graduation, you will be highly proficient in problem-solving, handling complex ideas and formulating solutions creatively. The range of skills acquired can be applied in both scientific and non-technical domains, in the areas of research & development, information technology, engineering and commerce.

Dr Andy Teoh Hao Fatt
Data Scientist
National Computer Systems
PhD in Physics (2015), NUS

Dr Teoh works with customers to identify opportunities where business analytics can be applied to transform and enhance business effectiveness.

“My Science education equipped me with business acumen and the ability to communicate the value of business analytics to ‘C’-level executives. These skills facilitate commercial enterprises’ decision-making in areas like supply chain optimisation, fraud analysis, time-series forecasting and financial analysis.”

Dr Wong Loke Yuen
Global Product Manager
Applied Materials
BSc (Hons) in Physics (2006); Minor in Computing with Scientific Data
Undergraduate Research Opportunities Programme in Science
PhD in Physics (2011), NUS

Dr Wong manages capital equipment products serving the semiconductor industry. He is responsible for the business plan, marketing strategy and technology roadmap of his products.

“NUS’ flexible Science curriculum allowed me to take experimental modules, which equipped me with useful skills such as laboratory management and organisational skills. In addition, my multidisciplinary research projects covering Physics, Chemistry and Material Science prepared me well for industry projects which involve solving technical problems and product development.”
The NUS Department of Statistics and Applied Probability, the only university-level statistics department in Singapore and one of the largest in the world, offers you a wide array of modules ranging from theoretical and applied statistics to applied probability.

You can also choose to specialise in either Biostatistics or Finance and Business Statistics as you advance further in your study. Through this programme, you will learn principles and skills on data analysis that have proven successful in supporting many business activities, including scientific research, Government administration and business operations. Examples include: how to design an experiment that can answer a scientific question within resource constraints; how to conduct a survey on citizens’ health that will yield reliable conclusions; and how to put together knowledge from experiments and surveys to make predictions about an organisation’s future needs. Upon graduation, you will acquire strong statistical and analytical skills and will be well-prepared for the deluge of big data.

Data Science

Tay Yu Xuan
Data Scientist
Data Science Division
Infocomm Development Authority of Singapore
BSc (Hons) in Statistics, specialisation in Finance & Business Statistics (2014)
Minor in Financial Mathematics

Yu Xuan’s team works with Government agencies to improve public service by extracting insights from large datasets through data science.

“My Science training prepared me well in evidence-driven hypothesis formulation and validation. Using statistical modelling techniques, I am also able to derive insights from data to facilitate planning and decision-making.”

Government

Shanice Teo
Statistical Specialist (Processing)
Manpower Research and Statistics Department
Ministry of Manpower
BSc (Hons) in Statistics (2011); 2nd Major in Economics
Summer Programme at Korea University
MSc in Statistics (2014), NUS

Shanice works on labour force statistics which impact the Government’s policy-making decisions.

“I was exposed to various fields of statistics. This enables me to execute and supervise the data processing on national surveys on employment, training and other labour-related topics to provide timely and reliable statistics which facilitate informed decision-making.”
COMPUTATIONAL BIOLOGY

NUS offers an innovative four-year programme in Computational Biology, one of the most exciting fields of modern science. This multidisciplinary programme is jointly offered by the Faculty of Science and School of Computing and involves 11 departments across three faculties: the departments of Biological Sciences, Chemistry, Mathematics, Pharmacy, Physics and Statistics and Applied Probability from the Faculty of Science; the department of Computer Science from the School of Computing; and the departments of Biochemistry, Microbiology, Pharmacology and Physiology from the Yong Loo Lin School of Medicine.

Through this programme, you will develop knowledge and broadly applicable skills relevant to biological sciences, mathematical and statistical analysis and computer science. Upon graduation, you will be skilled in algorithm design and data analysis and be adept in computer-based analysis of biological problems. In addition to scientific domains, the interdisciplinary skills you acquire can be put to good use in non-scientific fields such as infocommunications, information technology and finance.

Tomithy Too
Seeker
ST Telemedia
BSc (Hons) in Computational Biology (2012); Minor in Technopreneurship University Scholars Programme

Tomithy evaluates potential investment opportunities in technology start-ups and helps to create value by driving synergies between ST Telemedia’s portfolio companies.

“Through my interdisciplinary coursework, I obtained skills in software and technology-entrepreneurship. These skills help me to evaluate business models and the technology of innovative start-ups to identify promising investment opportunities.”

Ivan John Clement
Data Scientist
Merck & Co.
BSc (Hons) in Computational Biology (2013); Minors in Biophysics & Mathematics Special Programme in Science; University Scholars Programme

Ivan uses data collected from different parts of the organisation to build computational models driven by advanced analytics and machine learning. Using these models, he helps the company to deliver the right drugs at the right price to patients.

“My multidisciplinary course helps me integrate information from biology, pathophysiology, pharmacology, epidemiology and computational sciences to make solid business decisions on drug development. The practical training and independent learning enable me to be a self-starter on the job.”
**Zhang Yuchen**

PhD Student in Biological Sciences
Bachelor of Environmental Studies (Hons), specialisation in Environmental Biology (2015)

Yuchen is pursuing her PhD in Biological Sciences, focusing on sustainable agriculture. She plans to teach after graduation.

“*My studies in environmental conservation are useful to assess how markets impact the diverse variety of agricultural land and forests.*”

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**Jolene Lim Xue Qi**

Manager (Incentives)
Agri-Food & Veterinary Authority of Singapore
Bachelor of Environmental Studies (Hons), specialisation in Environmental Biology (2015)

Jolene is part of the team that manages incentive schemes to help local farms to upgrade capabilities and improve productivity through manpower, resource savings and increase in yield.

“*My training is useful in my work in advancing the local agriculture industry. This ensures food supply security in Singapore.*”

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**BACHELOR OF ENVIRONMENTAL STUDIES (BES)**

The internationally unique Bachelor of Environmental Studies is a four-year, one-of-its kind programme in NUS and Singapore. It is jointly hosted by the Faculties of Science and the Arts and Social Sciences with participation from the Faculty of Engineering, Faculty of Law, School of Design and Environment, NUS Business School, Yong Loo Lin School of Medicine, Saw Swee Hock School of Public Health and Lee Kuan Yew School of Public Policy.

In this interdisciplinary programme, you will acquire a solid foundation and specialised knowledge in environmental issues through a broad-based curriculum covering Biology, Chemistry, Mathematics, Statistics, Economics, Geography, Building, Law, Public Health, Management and Policy, as well as experiential participation in real-world and real-time field studies in neighbouring countries. You will also gain knowledge on multi-varied approaches in addressing complex and modern environmental challenges such as climate change, land use, water usage and building liveable high-density cities. Upon graduation, you will be competent in developing innovative measures and robust policies, processes and systems to tackle impending environmental issues.
General Professional Careers

Our Science curriculum is developed in concert with employers’ requirements and is designed to dovetail with present and future professional career opportunities. Besides specialised domain knowledge, a Science education also teaches you problem-solving and intellectual rigour, traits that are valued by employers both within and outside the field of Science. Our graduates’ knowledge and skills make them employable with virtually any type of organisation. Their career paths are varied, interesting and flexible. Many of our alumni enjoy meaningful and rewarding careers in fields like policy-making, business, finance, management, information technology and administration. Some have attained leading positions in the public and private sectors while others have gone on to become successful entrepreneurs.

Chay Hong Leng
Executive Director
UBS
BSc in Chemistry and Physiology (1994)

Hong Leng manages investment portfolios for high net worth individuals from diverse industries.

“In the financial world, we have to analyse a copious amount of research, appraise market conditions and the economic environment, calibrate risks, evaluate investment portfolios and make informed investment decisions. The skills I acquired through my Science education, such as observational abilities, data analysis, independent judgement and critical thinking, are integral to my work.”

Ken Lee
Senior Business Analyst, ASEAN
Ernst & Young
BSc in Physics (2012)

Ken works with different industry sectors on strategic planning, designing technology roadmaps and policy impact analysis.

“Consulting requires diligent research, quick thinking and confidence to work with influential people to effect change. We frame problems, break them down and propose meaningful solutions. My Physics education trained me to think holistically and logically, to correlate evidence and develop methodologies for problem-solving.”
Raphael Ong Lee Sheng
Management Consultant
IMS Consulting Group
BSc (Hons) in Life Sciences, specialisation in Biomedical Sciences (2012)
Minor in Technopreneurship; University Scholars Programme

Raphael helps pharmaceutical, biotechnology and healthcare companies enhance competitiveness and drive growth, through high impact analysis and implementable business strategies.

“NUS’ Science education is well-rounded, with a good blend of academic rigour and real-world applicability. The flexible curriculum allowed me to pursue my passion in biomedical science, while gaining overseas exposure and an experiential understanding of business and technology. These experiences enabled me to be effective on the job.”

Dr Audi S Fong
Senior Regional Business Manager
3M Aerospace and Commercial Transportation Division
3M Asia Pacific Pte Ltd
BSc (Hons) in Chemistry (1996)
PhD in Chemistry (2001), NUS

Dr Fong oversees business and growth strategies in the aerospace markets for the Asia Pacific region, spanning India, China, Japan and Australia / New Zealand. Over the last 15 years, his career has included research & development, public policy and leading various business units for 3M.

“My Science training equipped me with intellectual rigour, discipline and the ability to think and act quickly - to make sound decisions, based on data and facts. With today’s ubiquity of information, Science is more important than ever.”

Dr Bernard Leong
Head, Digital Services
Singapore Post Ltd
BSc in Physics and Materials Science (1998)
PhD in Physics (2003), University of Cambridge

Dr Leong leads the Digital Services team and oversees digital strategy and innovation across the Singapore Post Group. He was previously a research scientist with the Wellcome Trust Sanger Institute and Cavendish Laboratory.

“My Science training provided valuable skills which greatly helped my careers in academia, a start-up and in the corporate sector. I acquired the learning agility to figure out solutions to new challenges, be it a problem in genomics or leading a technology and business team. A Science degree is the best education to stay relevant, given the accelerating pace of technology in most industries.”

Patrick Yong
Chief Executive Officer
MyChinaChannel Pte Ltd
BSc in Biology (1988)

Patrick is currently the CEO of MyChinaChannel Pte Ltd, a media content company. Over the last 27 years, he worked in journalism, public relations, advertising sales and business development.

“When it comes to investment decisions or merger and acquisition opportunities, I have to analyse information and apply the rigorous process of critical thinking acquired from my Science training to formulate sound investment decisions.”
Contrary to perception, some of the most exciting careers are in the Sciences. A Science career, which is about exploration and delving into the unknown, enables you to contribute to society in the form of scientific advancements and breakthroughs. Some of our graduates are employed in exciting niche fields such as forensic science, which involves specialising in crime scene investigations using scientific methods. Others have set up their own companies or work with humanitarian, Non-Governmental Organisations on social or environmental causes.

Adjunct Associate Professor Christopher Syn
Director, Biology Division & Director, DNA Profiling Laboratory
Health Sciences Authority
BSc (Hons) in Cell & Molecular Biology (1996)
PhD in Molecular Bacteriology (2001), NUS

*Associate Professor Syn* leads a team of scientists and technical officers in serving the administration of justice by providing DNA profiling services to law enforcement agencies.

“My Science education emphasises building a broad and deep knowledge base which helps to develop scientific literacy and to foster continuous learning. Participating in research projects enabled intellectual engagement and refined my critical thinking skills. These are fundamental to my role in building national forensic science capabilities.”

Superintendent Jason Loke
Assistant Director
Forensics Division, Criminal Investigation Department
Singapore Police Force
BSc (Hons) in Biochemistry (1997)

*SUPT Loke* is responsible for the strategic planning and development of the Forensics Division in the Criminal Investigation Department. He sets the standards for crime scene investigation and spearheads the development of forensic capabilities in the Singapore Police Force.

“Forensics brought me to my dream job, where I can combine my Science training with criminal investigation. My training focuses not only on scientific methodology but also logical thinking, and inductive and deductive reasoning. These are key attributes which help me to manage complex and demanding cases.”
Shawn Foo
Senior Crime Scene Specialist
Singapore Police Force
BSc (Hons) in Chemistry (2013); Minor in Forensic Science
Summer Research Programme at King’s College London
MSc in Analytical Toxicology (2014), King’s College London

Shawn’s work involves applying science to law enforcement. His work includes recovery of forensic evidence at crime scenes to aid investigations and court cases, preserving evidence for laboratory analysis and using emerging technologies to improve forensic capabilities.

“My Chemistry course, laboratory training and exposure to the Forensic Science-related programme gave me excellent appreciation of the science behind forensics. These theoretical and technical skills enable me to be adept in my job. Science is a very versatile discipline. We are equipped with skills that are sought after in many fields.”

Verleen Goh
Founder
Soyato Foods International Pte Ltd
BApplSc (Hons) in Food Science & Technology (2010)
Summer Programme at Kyushu University

Verleen created soy-based frozen dessert as a healthy alternative to ice cream. Her concoction proved a hit. Soyato now reaps a steady profit. Verleen is planning to internationalise Soyato.

“The Food Science & Technology (FST) programme equipped me with the technical knowledge and skills to pursue my dream of creating healthier foods to benefit consumers. Soyato was the first food start-up company supported by SPRING Singapore. I first created Soyato 100 Cal non-dairy ice cream at the FST lab. Without FST, there wouldn’t be Soyato today.”

Olivia Lum
Executive Chairman & Group Chief Executive Officer
Hyflux Ltd
BSc (Hons) in Chemistry (1986)

Olivia founded Hyflux as she was convinced that the water business was a sunrise industry. Hyflux pushed for membrane technology, which was new and expensive in the 1990s. Today, Hyflux is a leading water solutions provider and was publicly listed in 2001.

“My Chemistry major provided me the foundation to enter the water business and identify membrane technology to competitively differentiate ourselves. Science is not about hard equations, rote learning and sitting in a laboratory detached from the outside world. It is interconnected with many aspects of our lives. Without scientific knowledge and discoveries, many things that we rely on in our daily lives would not exist today.”

Louis Ng
Founder and Chief Executive
Animal Concerns Research and Education Society
Member of Parliament, Nee Soon GRC
BSc in Biology (2002)
MSc in Primate Conservation (2005), Oxford Brookes University

Louis is the Chief Executive of Animal Concerns Research and Education Society, a charity he founded when he was an undergraduate in 2001. He has been a member of the Animal Welfare Legislation Review Committee and the Multi-Stakeholder Collaboration Committee since 2012. He has served as a Member of Parliament for Nee Soon GRC since September 2015.

“I assisted in drafting new animal protection legislation in Singapore. I would also like to promote volunteerism amongst residents. It is about empowering people, inspiring them and mobilising them to come forth to serve.”

Law Enforcement and Forensic Science

Entrepreneur

Non-Governmental Organisations

Exciting Careers
Our programmes serve as an excellent springboard for the pursuit of further studies. Some of our graduates embark on postgraduate studies or careers in academia as researchers or lecturers in top local and international universities and research institutes, thereby contributing to the further advancement of science.

We have various postgraduate scholarships to facilitate continual learning. The NUS-Overseas Graduate Scholarship is for young and outstanding individuals to pursue academic careers. The NUS-Overseas Postdoctoral Fellowship is awarded to fresh PhD holders with passion and notable accomplishments in teaching and research, and upon acceptance for postdoctoral training at a leading overseas academic or research institution. The NUS Research Scholarship is awarded to outstanding graduates for research leading to a higher degree at NUS.

Some of our alumni include Dr Liu Mei Hui from the pioneering batch of the Food Science & Technology programme who returned to teach the course at NUS; Prof Chan Hock Peng, Head of NUS’ Department of Statistics and Applied Probability who graduated in 1993 with a BSc (Hons) in Mathematics; Prof Sow Chorng Haur, Head of NUS’ Physics Department who obtained a BSc (Hons) and MSc in Physics in 1991 and 1993, respectively; and Prof John KH Quah, who graduated in 1986 with a BSc (Hons) in Mathematics and is currently a Professor in Economic Theory at the University of Oxford.

**Dr Cedric Tan**
Postdoctoral Researcher, Wildlife Conservation Research Unit
College Lecturer, Wadham College, University of Oxford
BSc (Hons) in Life Sciences, concentration in Biology (2009)
PhD in Zoology (2012), University of Oxford

**Dr Tan** develops training courses in practical wildlife conservation and innovative teaching and outreach initiatives for Oxford’s Diploma programme. He also conducts field training for students.

“NUS’ Science education developed my acuity in research designs, from laboratory experiments to field observation studies. In the process, I refined my leadership and communication skills which are tremendously useful in forging collaborations and leading outreach and research projects. Through games, role plays and my research skills in ecology and pedagogy, I hope to inspire future leaders in conservation and education.”

**Dr Jackson Tan Boon Sze**
Postdoctoral Programme Fellow
Goddard Space Flight Centre
National Aeronautics and Space Administration
BSc (Hons) in Physics (2009); Minor in Mathematics
Student Exchange Programme at Australian National University
MSc in Earth Physics (2010), Australian National University
PhD in Atmospheric Science (2014), Monash University

**Dr Tan** validates satellite measurements of rainfall with radars on the ground and uses the refined products to improve our understanding of precipitation processes.

“The analytical skills from a Physics degree are essential to understanding atmospheric science and climate processes. My numerical computation skills gave me a distinct advantage over my peers in deciphering vast amount of data.”
Transformation in Career Pathways

Our broad-based education with cross-disciplinary learning opportunities equips our graduates with the foundational skills, such as resilience, adaptability and lifelong learning, which enable them to make transitions into multiple careers in diverse domains. Some of our alumni have ventured into unfamiliar domains. Others have set up their own businesses after gaining rich and myriad experiences across industries. They remain highly employable as they can quickly integrate into new and challenging work environments.

Soo Hua started as a broadcast journalist and has assumed bigger editorial responsibilities at MediaCorp.

Adjunct Associate Professor Stella Tan Wei Ling
Director (Legal Policy and Prosecution)
Health Sciences Authority
BSc (Hons) in Cell and Molecular Biology (1998); Minor in Biotechnology
MSc in Cell and Molecular Biology (2001), NUS
LLB (Hons) (2004), NUS
MSc in Forensic Science (2013), University of New Haven

Adjunct Associate Professor Tan is the Health Sciences Authority’s Director of Legal Policy and Prosecution. She is seconded from the Attorney-General’s Chambers where she holds the appointment of a Deputy Senior State Counsel. She lectures on Forensic Science and Evidence in Forensic Science at the NUS.

“My education in the Science and Law Faculties taught me to be systematic, inquisitive, to think out of the box, have a healthy attitude towards learning, be resilient in the pursuit of the truth, to demonstrate an acute proclivity for difficult challenges and not be intimidated or discouraged by failures.”

Tung Soo Hua
News Presenter / Editor
MediaCorp Pte Ltd
BSc (Hons) in Mathematics (1997)
MSocSc in International Studies (2007), NUS

Soo Hua is a multiple award-winning news and current affairs presenter on Channel 8, MediaCorp. Besides presenting, she also line produces regular news bulletins and special programmes.

“My Science education gave me resilience to manage change. Now, I live the change daily as a journalist.”

Adjunct Associate Professor Stella Tan
started her career at a major law firm and is now a Legal Officer in the public sector, a forensic science advocate and an academic.

Associate Professor Tan is the Health Sciences Authority’s Director of Legal Policy and Prosecution. She is seconded from the Attorney-General’s Chambers where she holds the appointment of a Deputy Senior State Counsel. She lectures on Forensic Science and Evidence in Forensic Science at the NUS.

“My education in the Science and Law Faculties taught me to be systematic, inquisitive, to think out of the box, have a healthy attitude towards learning, be resilient in the pursuit of the truth, to demonstrate an acute proclivity for difficult challenges and not be intimidated or discouraged by failures.”
Dr Mokhtar has served as a Member of Parliament for Ang Mo Kio GRC since 2011. In her current job, she consults on continuing education and training projects, and provides leadership and guidance for Leeds HR Group’s strategic business plans in Singapore and the Middle East. She has served the community through Mendaki, the Singapore Muslim Women’s Association and Central Singapore CDC.

“When I was appointed a grassroots advisor, I had virtually no experience. My Science training equipped me to swiftly adapt to new environments. My varied career paths over the last 16 years is proof that the possibilities for Science graduates are limitless.”

Eric’s consulting company solves problems in the manufacturing and banking sectors and develops innovative solutions in human capital analytics.

“The fundamentals of Science - logic, problem-framing, testing, fact finding and hypothesis formulation - allowed me to see connections and deconstruct processes. These skills got me into decision science when the practice was nascent. They enabled me to contribute to Citi Asia Pacific’s retail revenues and subsequently, to manage my consulting company.”

Dr Mokhtar started her career in Physics and Mathematics and thereafter, ventured into Information Science, public administration and consulting.

Dr Intan Azura Bte Mokhtar
Chief Operating Officer
Leeds HR Group
Member of Parliament, Ang Mo Kio GRC
BSc in Physics (1998)
Postgraduate diploma in Education (1999), NTU
MSc & PhD in Information Studies (2003, 2008), NTU
Master in Public Administration (2008), NUS

Dr Mokhtar has served as a Member of Parliament for Ang Mo Kio GRC since 2011. In her current job, she consults on continuing education and training projects, and provides leadership and guidance for Leeds HR Group’s strategic business plans in Singapore and the Middle East. She has served the community through Mendaki, the Singapore Muslim Women’s Association and Central Singapore CDC.

“When I was appointed a grassroots advisor, I had virtually no experience. My Science training equipped me to swiftly adapt to new environments. My varied career paths over the last 16 years is proof that the possibilities for Science graduates are limitless.”

Hee Jug started his career with the Singapore Police Force before moving on to a distinguished career in public healthcare.

Foo Hee Jug
Chief Executive Officer
Jurong Health Services and Ng Teng Fong General Hospital
BSc (Hons) in Mathematics (1990)

Hee Jug was tasked to set up Jurong Health Services as a regional health system for the population in the Western sector of Singapore. He led the planning, designing and opening of the integrated healthcare hub comprising the Ng Teng Fong General Hospital and Jurong Community Hospital.

“The Faculty of Science’s collegial environment of working closely with peers of diverse backgrounds gave me a wonderful university experience. The learning stuck with me and has helped me through the years in my career changes.”
Learning Outcomes
- Technical Know-How
- Research Methodologies
- Critical & Analytical Thinking Skills
- Data Analysis Skills
- Academic Writing & Presentation Skills

Learning Outcomes
- Enhanced Domain Knowledge
- Strengthened Social & Global Outlook

Learning Outcomes
- High Achiever
- Lifelong Learner

YOUR FOUNDATION
- Discipline Foundational Courses
- Freshman Seminars
- Science Communication Courses
- General Education Courses

YOUR DEVELOPMENT
- Discipline-Based Majors
- Double Majors, Minors, Double Degrees, Joint Degrees, Concurrent Bachelor’s & Master’s Degrees
- Undergraduate Research Opportunities Programme in Science
- Special Programme in Science
- Global Science Programme
- NUS Pre-Medical Programme

YOUR TRANSFORMATION
- Specialisations in Majors
- Study Abroad Programmes
- Summer Programmes
- Undergraduate Professional Internship Programmes
- Final-Year Honours Project

YOUR FUTURE-READINESS
- Excellent Problem-Solving Skills
- High Adaptability & Resilience
- Strong Collaborative Skills

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