FACULTY OF APPLIED SCIENCES
WELCOME TO UCSI

UCSI is based in Cheras, Kuala Lumpur. It stands out as one of Malaysia’s foremost private universities but did you also know that UCSI is:

- The 1st university in Asia to facilitate industry placement for students each year.
- Tier 5 is classified “Excellent” and it is the highest rating accorded to Malaysian universities so far.
- UCSI is one of the few Malaysian private universities to break into the 2015 and 2016 QS Asian University Rankings.
- Over 30% of UCSI’s student population is INTERNATIONAL.
- Over 10,000 on campus
- Over 1,000,000 FT² of state-of-the-art learning space will be added once UCSI’s two new academic blocks are completed in 2017.
- 1 in 5 UCSI students obtain a merit-based government scholarship or grant.
- Over 30% of UCSI’s academic staff are PhD holders and a further 17% are pursuing their doctorate. The 2015 average at private higher education institutions in Malaysia is 16%.
- Over 4,000 global companies provide our students with internship opportunities.
- Around 96% of our co-op partners would like to rehire UCSI interns.
- Over 100 academic programmes make UCSI the most ACADEMICALLY DIVERSE private university in Malaysia by far.
- In Malaysia’s private higher education landscape
- The Pioneer of Aquatic Science, Biotechnology, Food Science, Music and Nutrition.*
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UCSI University’s Faculty of Applied Sciences provides smarter solutions for a smarter planet. Students and staff drive innovation on a daily basis and their research areas are as impressive as they are diverse. The suitability of local herbs in cancer treatment, the use of jellyfish toxins as therapeutic solutions, and the advancement of biology-based materials science are just a few of the many research endeavours at the Faculty.

This dynamic culture of scientific discovery is driven by the Faculty’s goal to develop effective biology-based technologies for application in everyday life. Nothing is ever taken for granted and each conjecture is thoroughly debated, assessed, tested, and refined. This rigorous commitment to excellence translates into results. The Faculty is making great strides in drug discovery, food and water safety, greater crop yield, cancer treatment, and the curing of diseases, among others, and the trend shows no signs of stopping.

Research is a central theme at the Faculty. Most of its academics are PhD holders who stand out in their respective disciplines. They actively publish in international research journals and you will benefit immensely from their supervision. Additionally, many have worked overseas at leading companies, research facilities and universities. They bring their vast scientific and industry network along with them and the Faculty ups things further by inking strategic tie-ups with some of the industry’s biggest brands, creating opportunities for students and staff. This is the engaging environment you will be stepping into.

You will think like never before. And you will love it as you evolve professionally through a multidisciplinary range of expertise and research. Ultimately, your experience at the Faculty will be rewarding. By learning from – and working alongside – experienced research mentors, you will develop new insights on how science can work for the betterment of all. You will utilise cutting-edge technology during your time here and you can be confident of achieving novel findings based on your mastery of applications. You will draw the smarter correlations as you analyse how biological systems function in response to external agents. And with an industry-acclaimed credential in science, you can be confident that doors will open wherever you go.
BSc (Hons) Biotechnology

As one of the first Biotechnology education providers in the Malaysian private higher education sector, we have numerous strategic tie-ups with some of the world’s biggest companies in science. This opens doors for students and staff through technology transfers, internship opportunities, numerous site visits, industry talks on campus, and, of course, job opportunities. Versatility is a hallmark of the programme — as a student of this programme, you will be addressing critical issues in biotechnology through the study of genetic engineering, pharmacology, fermentation technology, among others. You will complement your abiding interests in science with the market sense to translate academic mastery into business opportunities. And with a firm footing in both fields, doors will open wherever you go.

When I received my PhD, I thought to myself — how did I get here? What led me here? I knew that I always loved human genetics but why did I persevere? Having a faculty that inspired me through my formative scientific years at UCSI University helped tremendously! The constant provocation of scientific questions and the development of an analytical mind were the core of what I felt moulded me into pursuing a PhD and being the gene hunter that I am now.

MUTHU KUMAR VEERAPEN
Currently a Post-doctoral Research Fellow at Broad Institute / Harvard Medical School

International Degree Pathway*

- Northumbria University (1+2)
  BSc (Hons) Biotechnology
- University of Queensland (1+3)
  B Biomedical Science (Hons)
- University of Queensland (1.5+2.5)
  B Biotechnology (Hons) Major: Microbial Biotechnology / Molecular Biotechnology
- University of Queensland (1.5+1.5)
  B Science Major: Biochemistry & Molecular Biology
- University of Queensland (1.5+1.5)
  B Science Major: Biomedical Science / Ecology / Genetics / Marine Science / Microbiology / Plant Science / Zoology
- University of Queensland (1+2)
  B Science Major: Marine Biology
- University of the West of England, Bristol (2+1)
  BSc (Hons) Biological Science
- University of the West of England, Bristol (1+2)
  BSc (Hons) Forensic Science

SUBJECT LISTING

**YEAR 1**

- Chemistry 1
- Biology
- Calculus & Analytical Geometry for Applied Sciences
- University Life (MPU-U2)
- Extra-curricular Learning Experience 1 (MPU-U4)
- Human Physiology
- Chemistry 2
- Microbiology
- Structural Biochemistry
- Bioinformatics
- Co-operative Placement 1

**YEAR 2**

- Malaysia Experiential Tourism (MPU-U3) / Business Law – Malaysian Perspective (MPU-U3)
- Biochemistry & Metabolism
- Microbes & Immunology
- Statistics & Its Applications
- Entrepreneurship for Applied Sciences
- Extra-curricular Learning Experience 2 (MPU-U4)
- Research Methodology, Safety & Ethics
- Pharmacology
- Molecular Cell Biology
- Recombinant Technology
- Enzyme Technology
- Co-operative Placement 2

**YEAR 3**

- Human Molecular Genetics
- Environmental Biotechnology & Sustainability
- Cell & Tissue Culture
- Biotechnology Research Project 1
- Extra-curricular Learning Experience 3 (MPU-U4)
- Fermentation Technology & Downstream Processing
- Biotechnology Research Project 2
- Elective (Choose one)
  - Food Microbiology
  - Fundamentals of Marketing
  - Introduction to Public Speaking
  - Bioprocess Engineering
  - Co-operative Placement 3
  - Biotechnology Research Project 3

* General Courses (MPU) are compulsory for all students.

U1
- For Malaysian students: Ethnic Relations, Islamic Civilisation and Asian Civilisation
- For foreign students: Malaysian Studies, Communication in Bahasa Melayu

*Terms and conditions apply.*
BSc (Hons) Food Science With Nutrition

A 10009, 03/2019

Through our dynamic Food Science with Nutrition degree programme, you will explore the secret science behind food production, development and safety while you develop the research skills to enable you to pursue an exciting career within the food manufacturing industry, research institutes, government, and consumer organisations. As the market leader of Food Science studies in Malaysia, you will be able to utilise the latest practices in the industry and experience first-hand how technology affects food production and flavour delivery. You will enjoy avenues to create new food products and market them. And with a sound understanding of food safety, nutrition and legislation, you can rest assured that your future endeavours will change lives.

DID YOU KNOW?

Our faculty has been offering a credit transfer programme overseas since 1999, and our Food Science with Nutrition students have been on the dean’s list at The University of Queensland, Australia, for four years since 2009.

UCSI runs the most established food science programme in Malaysia – that’s why I’m here. And it’s one of the best decisions I ever made. I learned so much here and I benefitted from the industry experience the university provides. I want to use my knowledge to help underprivileged people in the future and I’m certainly at the right place to help me achieve my goals.

CHARIS WONG YI HUEY

Valedictorian with first-class honours, Class of 2016 Currently working as a medical sales representative with Mead Johnson

* Terms and conditions apply.

International Degree Pathway*

- Deakin University (1+2)
  B Food & Nutrition Science
- Northumbria University (1+2)
  BSc (Hons) Food Science & Nutrition
- Northumbria University (1+2)
  BSc (Hons) Human Nutrition
- QUT (Queensland University of Technology) (1.5+3)
  B Nutrition Science
- University of Otago (1+2 / 1.5+1.5)
  BSc (Food Science)
- University of Queensland (1+3)
  B Food Technology (Honours)
- University of Queensland (1.5+1.5)
  B Science Major: Food Science & Nutrition / Food Science

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  B Nutrition Science
- University of Otago (1+2 / 1.5+1.5)
  BSc (Food Science)
- University of Queensland (1+3)
  B Food Technology (Honours)
- University of Queensland (1.5+1.5)
  B Science Major: Food Science & Nutrition / Food Science

SUBJECT LISTING

YEAR 1

Extra-curricular Learning Experience 1 (MPU-U4)
Chemistry 1
Calculus & Analytical Geometry for Applied Sciences
Human Physiology
University Life (MPU-U2)
Chemistry 2
Structural Biochemistry
Statistics & its Applications
Microbiology
Principles of Nutrition
Biochemistry & Metabolism
Co-operative Placement 1

YEAR 2

Extra-curricular Learning Experience 2 (MPU-U4)
Malaysian Experiential Tourism (MPU-U3)/
Malaysian Ethnic Food (MPU-U3)/
Business Law: Malaysian Perspective (MPU-U3)
Food Chemistry
Lifespan Nutrition
Fundamentals of Food Engineering
Entrepreneurship for Applied Sciences
Analytical Chemistry
Food Processing & Packaging
Food Microbiology
Halal & Food Legislation
Free elective courses (select one)
Fundamentals of Marketing
Introduction to Public Speaking
Introduction to Internet Technologies
Research Methodology, Safety & Ethics
Co-operative Placement 2

YEAR 3

Extra-curricular Learning Experience 3 (MPU-U4)
Food Safety & Quality System
Nutritional Assessment
Food Commodities
Food Science & Nutrition Research Project 1
Nutrition & Chronic Diseases
Food Science & Nutrition Research Project 2
Free elective courses (select one)
Nutrition in Exercise & Physical Activity
Fermentation Technology & Downstream Processing
Nutrition & Functional Food
Nutrition, Food & Society
Product Development & Sensory Evaluation
Food Science & Nutrition Research Project 3
Co-operative Placement 3

* General Courses (MPU) are compulsory for all students.

U1
- For Malaysian students: Ethnic Relations, Islamic Civilisation and Asian Civilisation
- For foreign students: Malaysian Studies, Communication in Bahasa Melayu 3
If you are passionate about food, eager to explore how it affects the health of the individual and the nation, and curious to discover how diet can be used in the treatment of disease, our Nutrition with Wellness programme is for you. You will broaden your knowledge through a broad range of courses that underpin nutritional sciences. Our programme has an active application across a range of health and professional industries and will equip you with the knowledge, skills and expertise required to excel in this fascinating field. So whether your future lies in the nutrition and wellness, health and fitness advisory, health food and supplement sales and marketing, health education or government policy, you can rest assured that you will inspire confidence.

UCSI's Nutrition with Wellness programme is one of the most competitively priced programmes in the market and certainly among other health and wellness programmes.

When UCSI announced the new Nutrition with Wellness course, I jumped straight into it, knowing that this opportunity would be a good stepping stone to fulfil my wish of becoming a nutritionist. It was one of the best decisions I have ever made. Not only did I gain a lot from this programme, it also gave me the platform to apply what I have learned by providing access to healthcare services to the underserved community.

TANASHA AZALEA SUHANDANI
Co-Founder of Hands of Hope
Made the Dean’s Honours List two times
DID YOU KNOW?

UCSI University is the first private university in Malaysia to offer a degree that covers the study of both freshwater and marine ecosystems.

BSc (Hons) Aquatic Science

Water covers more than 70% of the earth’s surface. It is home to millions of aquatic species. And most importantly, it sustains human life. An invaluable resource must be managed responsibly and this programme was launched on this very basis. Addressing crucial issues in the aquatic ecosystem, the programme equips students with the know-how to develop solutions for an ever-changing planet.

You can look forward to developing a solid foundation in the basic sciences – analytical chemistry, microbiology, structural chemistry and statistics – before delving into the intensive study of environmental monitoring and assessment, aquatic biodiversity and taxonomy, principles in aquatic pollution and toxicology, among many others. You will also enjoy two different avenues of specialisation in your final year where you will opt for Aquatic Health and Management or Seafood Processing and Safety. Research is also an important component of the programme and you will have the opportunity to focus on ecosystem-based management, natural resources management, sustainable aquaculture, as well as impact of modernisation on natural ecosystems.

Define yourself at UCSI and keep the world’s most vital resource flowing.

SUBJECT LISTING

YEAR 1

Extra-curricular Learning Experience 1
Biology
Chemistry 1
University Life
Chemistry 2
Structural Biochemistry
Microbiology
Analytical Chemistry
Fundamentals of Management
Cooperative Placement 1

YEAR 2

Extra-curricular Learning Experience 2
Ecology and Sustainability
Business Communication
Environmental Monitoring and Assessment
Aquatic Biodiversity and Taxonomy
Entrepreneurship for Applied Science
Statistics and its Applications
Aquaculture Operation and System
Current Topics in Aquatic Science
Aquatic Pollution and Toxicology
Research Methodology, Safety and Ethics
Cooperative Placement 2

MPU-U3 (select one)
Malaysian Experiential Tourism (MPU-U3)
Malaysian Ethnic Food (MPU-U3)
Business Law – Malaysian Perspective (MPU-U3)

(Choose either Aquatic Health & Management or Seafood Processing and Safety)

Aquatic Health & Management
Extra-curricular Learning Experience 3
Aquatic Science Research Project 1
Conservation and Management of Aquatic Resources
Molecular Cell Biology
Recombinant Technology
Aquatic Science Research Project 2
Water and Waste-water Engineering
Tools for Aquatic Resource Management
Aquatic Diseases and Diagnostics
Aquatic Science Research Project 3
Cooperative Placement 3

Free elective (select 2)
Strategic Management
Seafood Industry
Introduction to Internet Technologies
Operation Management

YEAR 3

Seafood Processing and Safety
Extra-curricular Learning Experience 3
Aquatic Science Research Project 1
Halal and Food Legislation
Food Chemistry
Food Microbiology
Aquatic Science Research Project 2
Seafood Industry
Food Processing and Packaging
Food Safety and Quality Systems
Product Development and Sensory Evaluation
Aquatic Science Research Project 3
Cooperative Placement 3

Free elective (select 2)
Strategic Management
Introductory Accounting
Internet in Practice
Operation Management

* General Courses (MPU) are compulsory for all students. Please refer to the last page.

U1
- For Malaysian students: Ethnic Relations, Islamic Civilisation and Asian Civilisation
- For foreign students: Malaysian Studies, Communication in Bahasa Melayu 3
Diploma in Aquaculture With Entrepreneurship

N/620/4/0001; 10-2019

Anchored on the scientific understanding of aquatic management, this programme addresses the exploration, improvement and conservation of all freshwater and marine food resources. In ensuring students have an edge after graduation, this programme integrates the scientific aspects of aquaculture with the business aspects thus enabling one to venture into commercial activities such as business and entrepreneurship. You will develop the edge needed to thrive in a booming industry and the know-how to balance commercial benefit and sustainability concerns. And with a credential that inspires confidence, you can look forward to make a pertinent contribution in the industry.

"I enjoy my studies at UCSI and much of this is down to the learning environment at the Faculty. I’ve always been interested in bioscience and it’s great that I can complement this with business studies. The lectures I attend are extremely practical and I’m confident that I will realise my potential here."

YEOW SHENSHEN
Currently reading the Diploma in Aquaculture with Entrepreneurship
State-level judoka (UCSI University Trust Sports Bursary recipient)

LEARNING BEYOND THE CLASSROOM
UCSI Applied Science Week

Since 2009, the Faculty has organised the Wholesome, Original and Well-balanced (W.O.W) Food Fair annually as a platform to showcase innovative food products made by Food Science with Nutrition students. This food fair was further expanded in 2012 by including various aspects of Biotechnology — an industry that was rapidly growing globally, leading to the establishment of the 1st Applied Science Week (ASW). The Faculty’s Nutrition with Wellness and Aquatic Science programmes were later incorporated in 2016.

The event features a range of academic-based competitions, fun-filled activities, collaboration with industry players, and talks by distinguished and experienced speakers. Students are given the opportunity to showcase their food and beverage innovations as well as research findings.

Profits generated from the event is channelled to charitable bodies as a form of community support. Previous beneficiaries of our fundraising activities include Special Children Society of Ampang and Yayasan Sunbeams Home, among many others.
# Entry Requirements

<table>
<thead>
<tr>
<th>ACADEMIC QUALIFICATIONS</th>
<th>BSC (HONS) BIOTECHNOLOGY</th>
<th>BSC (HONS) FOOD SCIENCE WITH NUTRITION</th>
<th>BSC (HONS) NUTRITION WITH WELLNESS</th>
<th>BSC (HONS) AQUATIC SCIENCE</th>
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<tbody>
<tr>
<td><strong>UCSI Foundation in Science or equivalent</strong></td>
<td>Minimum CGPA 2.0 (inclusive of Chemistry, Biology and Mathematics/Physics). Pass at SPM level (or equivalent).</td>
<td>Minimum CGPA 2.0 (inclusive of Chemistry, Biology and Mathematics/Physics) and *Additional Requirement.</td>
<td>Minimum CGPA 2.5 (inclusive of Chemistry and Biology/Physics) and *Additional Requirement.</td>
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<td><strong>STPM</strong></td>
<td>Minimum 3 Principals (C) in Chemistry, Biology and Mathematics/Physics. Pass at SPM level (or equivalent).</td>
<td>Minimum 2 Principals (C) in Chemistry and Biology/Mathematics/Physics, minimum CGPA 2.0 and *Additional Requirement.</td>
<td>Minimum 2 Principals in Chemistry and Biology/Physics. Minimum GPA 2.5 and *Additional Requirement.</td>
<td>Minimum 2 Principals (C) in Chemistry and Biology/Mathematics/Physics. Minimum GPA 2.0.</td>
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<td><strong>UEC</strong></td>
<td>Minimum 5 credits (inclusive of Chemistry, Biology and Mathematics/Physics). Pass at SPM level (or equivalent).</td>
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<td><strong>CPU</strong></td>
<td>Minimum average of 60% in 6 subjects (inclusive of Chemistry, Biology and Mathematics/Physics). Pass at SPM level (or equivalent).</td>
<td>Minimum average of 60% in 6 subjects (inclusive of Chemistry, Biology and Mathematics/Physics) and *Additional Requirement.</td>
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<td><strong>National Matriculation</strong></td>
<td>Minimum CGPA 2.8 (inclusive of Chemistry, Biology and Mathematics/Physics). Pass at SPM level (or equivalent).</td>
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<td><strong>WAEC</strong></td>
<td>Minimum average of 60% in 5 subjects (inclusive of Chemistry, Biology and Mathematics/Physics). Pass at SPM level (or equivalent).</td>
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<tr>
<td><strong>Other qualifications deemed equivalent to STPM/A-Level by Malaysian Qualifications Agency</strong></td>
<td>Minimum average of 60% (inclusive of Chemistry, Biology and Mathematics/Physics). Pass at SPM level (or equivalent).</td>
<td>Minimum average of 60% (inclusive of Chemistry, Biology and Mathematics/Physics) and *Additional Requirement.</td>
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<td><strong>Diploma/Advance Diploma/Degree/ equivalent</strong></td>
<td>Minimum CGPA 2.0 (inclusive of Chemistry, Biology and Mathematics/Physics). Pass at SPM level (or equivalent).</td>
<td>Minimum CGPA 2.0 (inclusive of Chemistry, Biology and Mathematics/Physics) and *Additional Requirement.</td>
<td>Minimum CGPA 2.75, or CGPA below 2.75 but above 2.0, with a minimum of three (3) years (36 months) working experience in the same field. (Related Diploma from recognised institutions only).</td>
<td>Minimum CGPA 2.0 (inclusive of Chemistry, Biology and Mathematics/Physics).</td>
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<tr>
<td><strong>SAM</strong></td>
<td>Pass with ATAR of 70% including a minimum average of 60% in 5 subjects (inclusive of Chemistry, Biology and Mathematics/Physics). Pass at SPM level (or equivalent).</td>
<td>Pass with ATAR of 70% including a minimum average of 60% in 5 subjects (inclusive of Chemistry and Biology/Physics) and *Additional Requirement.</td>
<td>Pass with ATAR of 70% including a minimum average of 60% in 5 subjects (inclusive of Chemistry and Biology/Physics) and *Additional Requirement.</td>
<td>Pass with ATAR of 70% including a minimum average of 60% in 5 subjects (inclusive of Chemistry, Biology and Mathematics/Physics) and *Additional Requirement.</td>
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</table>

*Additional Requirement – Pass minimum 5 credits or equivalent at SPM level (or equivalent), three (3) of which are for the following subjects: 1) Biology 2) Physics 3) Mathematics 4) Chemistry 5) English

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# English Language Requirements for Degree Programme

A distinction (A+, A or A-) in the English Language subject at SPM/UEC level; or MUET Band 5; or a score of 196 (computer-based) / 525 (writing-based) / 69 (internet-based) in TOEFL; or Band 5.5 in IELTS.

In the event that the English Language Requirements are not met, student may be required to undertake additional English module(s) prior to or concurrently with the undergraduate programme, based on the University’s decision.
As the only local private university that offers aquatic science and aquaculture course, UCSI University has invested heavily in its new dry and wet labs equipped with aquarium tanks ranging from one to eight feet in length. The new facility is also home to the jellyfish kreisel tank, a carefully designed circular aquarium made specifically for jellyfish and seahorses that are sensitive to water pumps or even the corners of the tank itself.

Used for both teaching and research, this facility houses a wide range of instruments that are used to determine the physiochemical properties and sensory characteristics of food, as well as the ideal packaging for long term storage. High standards of hygiene are maintained to accurately simulate industry practices like GMP and HACCP.

Specially built to culture plant and animal cells, this facility is equipped with advanced imaging technology that enables researchers to visualise the cell growth and condition. A sterile environment is maintained to house the many instruments for culturing plant and animal cells including photosynthetic growth chambers, carbon dioxide incubators and biosafety cabinets.

This facility houses all the bacterial and fungal cultures used in research and teaching. Well-equipped to culture, store and contain microbes, the facility supports cutting-edge research in the areas of drug discovery, environmental health, food safety and antimicrobial therapies.

Equipped with an abundance of analytical instruments, this facility supports the analysis of biochemical enzymes, as well as organic and inorganic molecules. Training at the lab focuses on techniques that identify, quantify and separate components within natural and artificial materials.

This facility is used by students for plant-related research. Our research teams collect plant samples from various localities for chemical analysis and bioactivity studies. The lab is equipped with the latest research instruments including high-end liquid and gas chromatographs, a microencapsulator, and equipment for sample extraction and preparation.
Facilities

The works in this lab focus on the study of cells – their physiological properties, structure, the organelles contained, the interaction with the environment, life cycle, division and death as well as functions. This lab enables the study of cells to be conducted on the microscopic, molecular, gene and protein level.

Cell and Molecular Biology Lab

Housing a freeze dryer, spectrophotometers and PCR instruments, this facility houses a wide range of research apparatus and analytical instruments.

Biotechnology Lab

Used primarily for teaching, this lab houses various instruments and reagents for chemical assays and analysis.

Chemistry Lab

Careers

The Faculty’s diverse range of academic offerings provide students with much avenue to pursue their scientific affinities in myriad specialisms. These primarily focus on, but are not limited to the fields of biotechnology, food science, nutrition and aquatic science. With a well-respected undergraduate credential from UCSI University, you can look to chart a promising career in the following fields:

- Analytical Chemistry
- Aquatic Science
- Aquaculture
- Biochemistry
- Biological Engineering
- Biological Science
- Community Wellness
- Education and Research
- Environmental Science
- Food Technology
- Food Packaging and Preservation
- Food Product Development
- Food Quality Assurance
- Forensic Science
- Genetic Engineering
- Genomics
- Health Psychology
- Human Nutrition
- Limnology
- Marine Biology
- Medical Biotechnology
- Microbiology
- Nanotechnology
- Oceanography
- Pathology
- Pharmacology
- Proteomics
- Public Health
- Public Policy
- Sensory Evaluation
- Water Treatment

Get Set To Go Places.

The Faculty is constantly expanding its global network so you can do the same. Partnerships are forged with many multinational companies and you will enjoy myriad opportunities to complement your academic qualifications with invaluable industry exposure. Synonymous with quality, our students are highly sought after and many readily secure employment at the world’s leading scientific companies.

1. Abbott Laboratories
2. Banyan Tree Hotels and Resorts
3. Dutch Lady Milk Industries
4. Fonterra Brands
5. Fraser & Neave Holdings
6. GlaxoSmithKline
7. Mac Food Services
8. National Sports Institute of Malaysia
9. National Heart Institute
10. Nestle
11. Pfizer

... AND MANY MORE