

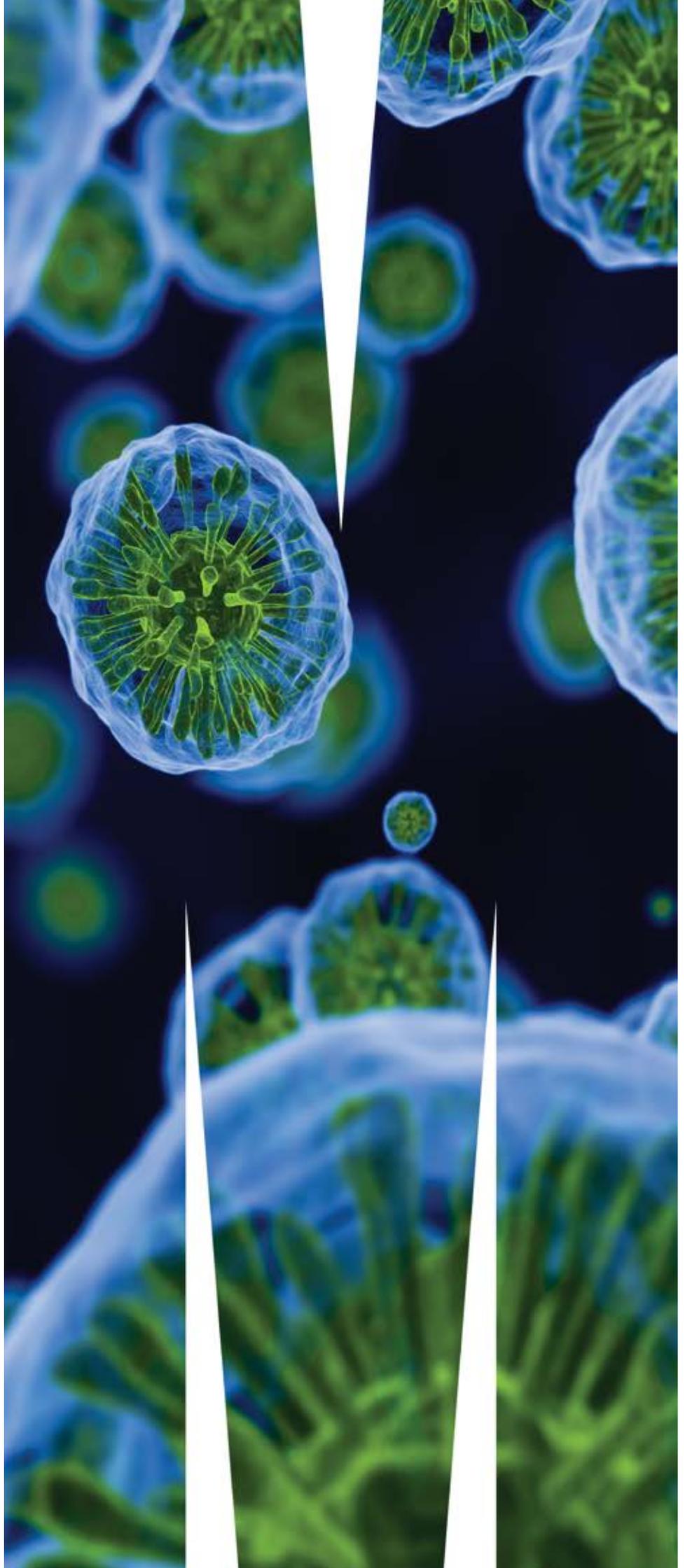


MONASH
University
MALAYSIA

MONASH SCIENCE

COURSE GUIDE 2017

sci.monash.edu.my







Scientific discoveries continue to change the world we live in. Science is a way of life suited to people who are open-minded, practical, curious and able to question why.

AT A GLANCE

- High-quality education that instills strong knowledge of science to help you become independent, responsible, open-minded, self-motivated and a critical thinker
- Specialisations in biology, biotechnology, food, medicinal chemistry and medical bioscience taught by world-class researchers with state-of-the-art laboratories
- Guidance from highly qualified and experienced academics and professors with international backgrounds

Upon graduation, you will have career opportunities in fields such as medical and pharmaceutical research, biotechnology, genetic engineering, biomedical instrumentation, food science and technology, and environmental consulting.

RANKING AND RECOGNITION

#33
for
Chemistry

QS World University Rankings by Subject 2016

TOP 100
for Biological Sciences
and Environmental Sciences

QS World University Rankings by Subject 2016

#44
for
Chemistry

Academic Ranking of World Universities 2015 by Subject

TOP 150
for Natural Science and Mathematics
and Life and Agricultural Sciences

Academic Ranking of World Universities 2015 by Field

Accredited by



Australian Government
Tertiary Education Quality and Standards Agency



BACHELOR OF SCIENCE



DURATION

3 years



INTAKES

February, July and October

The Bachelor of Science (BSc) offers flexibility in science education yet provides in-depth training in at least one specialised area. In the first year, you will sample from a wide range of units before choosing the major sequence that suits your interest in the second year. A special feature of the course allows you to pursue non-science units at different schools, e.g., communication, psychology, management, to form a study plan that suits your individual needs and career aspirations.

RECOMMENDED PROGRAM OF STUDY

The specific program of study is dependent on the combination of compulsory units, major sequence and other units. Below is an example of a program of study for the Bachelor of Science:

STAGE ONE

- Four units of level 1 science sequences
- Introduction to statistical reasoning or Statistical methods for science
- One science level 1 unit
- Two units from science or another school

STAGE TWO

- Four units of science major
- Scientific practice and communication
- Three units from science or another school

STAGE THREE

- Four units of science major
- Four units from science or another school

CAREER OUTCOMES

Graduates of this course can find employment in areas such as:

- Forensics
- Clinical trials coordination
- Intellectual property management
- Brewing
- Veterinary and animal health
- Biomedical product marketing
- Food quality assurance and food law
- Food retail and marketing
- Drug discovery and development
- Water authorities
- Conservation and marine biology
- Environmental management

COURSE REQUIREMENTS

Part A. Science specified study (48 points)

Students must complete all of the following:

- At least six level 1 science units (36 points) including:
 - a) a minimum of two level 1 science approved sequences
 - b) at least one level 1 mathematics or statistics unit from:
 - (i) Introduction to statistical reasoning
 - (ii) Statistical methods for science
- The course core unit, Scientific practice and communication
- A minimum of ten science units (60 points) at level 2 and 3 (including the course core unit), with at least four science units at level 3

Part B. Science listed major (48 points)

Complete at least one science listed major from those listed below. A major requires eight units with no more than two units at level 1 (12 points) and at least three units (18 points) at level 3.

AREAS OF STUDY

- Applied microbiology
- Biotechnology
- Medicinal chemistry

- Psychology
- Tropical environmental biology

It is recommended that you consider completing level 2 units in more than one area of science to maximise your choice of major at level 3.

If you intend to undertake an honours year you should ensure you complete the specific units required as a pre-requisite for honours in your chosen major area of study.

Part C. Free elective study (48 points)

Your elective units may be chosen from remaining units available in the Bachelor of Science course and will enable you to extend your major or to complete a second major or minor(s).

Elective units may also be taken from non-science disciplines to broaden your knowledge or to complete a major or minor(s) from another course as long as you have the prerequisites and there are no restrictions on enrolment in the units.

NOTES:

Overall students must complete:

- A minimum of 96 points of core science studies
- No more than ten level 1 units (60 points) across the whole course

PREREQUISITES

- English (Monash's minimum English language requirements apply)
- A passing grade in one of Biology, Chemistry, Mathematics, Physics, Geography, Psychology or Higher Level Mathematics (Australian Year 12 equivalent)

BACHELOR OF FOOD SCIENCE AND TECHNOLOGY



DURATION

3 years



INTAKES

February, July
and October

The Bachelor of Food Science and Technology is your opportunity to make a difference to the health and well-being of future generations. The course focuses on helping you to develop a greater understanding of the science of food and the way raw materials are processed into food. It also focuses on aspects of the technology of food such as preservation, processing, packaging and distribution which ensure that food is safe, nutritious, and wholesome.

Graduates of the course are critical thinkers with skills and techniques related to the broad areas of food science and technology. The course also increases understanding of the importance of food to human nutrition and well-being.

Upon completion of this course, you will have the knowledge of science across a range of science disciplines, with advanced knowledge and skills in a broad spectrum of areas relating to food science and technology. In addition, you will gain an internship experience with industry.

This course has been recognised by the International Union of Food Science and Technology (IUFoST) as having met regional guidelines in food science and technology programmes of study.

RECOMMENDED PROGRAM OF STUDY

STAGE ONE

- Biology I and II
- Fundamentals of biotechnology
- Chemistry I advanced
- Chemistry II advanced
- Fundamentals of food science
- Introduction to statistical reasoning or Statistical methods for science
- One six-point elective unit

STAGE TWO

- Food bioprocess technology
- Data analysis for science
- Biochemistry
- Spectroscopy and analytical chemistry
- Food chemistry
- Fundamentals of microbiology
- Scientific practice and communication
- One six-point elective unit

STAGE THREE

- Food and industrial microbiology
- Human nutrition
- Food preservation
- Functional foods
- Food processing
- Food product development
- Food science internship
- Laboratory and workplace management

Career outcomes

Graduates find employment in national and multinational food companies in the following areas:

- Food product development
- Production
- Quality assurance and control
- Sensory analysis
- Food laws and regulations
- Sales and marketing
- Management

COURSE REQUIREMENTS

The course comprises 144 points of which 132 points comprise food science and technology study and 12 points are free electives.

Elective units may be at any level, however, no more than 10 units (60 points) may be completed at level 1.

PREREQUISITES

- English (Monash's minimum English language requirements apply)
- A passing grade in one of Biology, Chemistry, Mathematics (Australian Year 12 equivalent)

BACHELOR OF MEDICAL BIOSCIENCE



DURATION

3 years



INTAKES

February, July
and October

The course provides training in medical bioscience with a focus on medical/molecular diagnostics and medical biotechnology. You will study a wide range of topics including anatomy, biochemistry, cellular metabolism, immunology, medical microbiology, human physiology, pharmacology and pathology.

The course offers a regionally appropriate perspective relevant to the local geographical and healthcare context; this is primarily achieved by the inclusion of suitable examples and case studies. An applied research project is available as an elective unit, enabling qualified students to undertake meaningful research and further develop technical skills.

Upon completion of this course, you will have the knowledge of science across a range of disciplines, with a high level of understanding and appreciation in a broad spectrum of areas relating to medical bioscience. You will develop quantitative and qualitative research skills and will have an understanding of the importance of an ethical basis for scientific research and development activity particularly in the context of areas such as clinical/pathology laboratory skill and human health.

This course also equips you for employment in both the public and corporate/private sectors where the emphasis is on skills such as data collection, analysis and interpretation, presentation and communication skills, and the capacity to work in a team.

RECOMMENDED PROGRAM OF STUDY

STAGE ONE

- Biology I and II
- Fundamentals of biotechnology
- Chemistry I advanced
- Chemistry II advanced
- Introduction to statistical reasoning or Statistical methods for science
- Introduction to anatomy
- One six-point elective unit

STAGE TWO

- Biochemistry
- Recombinant DNA technology
- Fundamentals of microbiology
- Cellular metabolism
- Scientific practice and communication
- Physiology of human body systems
- Physiology of human health
- One six-point elective unit

STAGE THREE

- Principles of pathology I
- Principles of pathology II
- Medical microbiology
- Fundamentals of toxicology
- Molecular biology and biotechnology
- Essentials of applied immunology
- Principles of pharmacology
- Medical bioscience internship

CAREER OUTCOMES

Graduates can find employment in:

- Clinical, diagnostic, pharmaceutical and forensic laboratories
- Healthcare industry

- Management
- Veterinary diagnostic laboratories
- Research
- Education
- Biomedical equipment and pharmaceutical sales

COURSE REQUIREMENTS

The course comprises 144 points of which 132 points comprise biomedical science study and 12 points are free electives.

Elective units may be at any level, however, no more than 10 units (60 points) may be completed at level 1.

PREREQUISITES

- English (Monash's minimum English language requirements apply)
- A passing grade in Chemistry (Australian Year 12 equivalent)
- A passing grade in Biology and Mathematics (Australian Year 12 equivalent) is recommended

PROFESSIONAL ATTACHMENT

Students will normally engage in diagnostic laboratories and hospitals during their internship. Companies such as Sunway Medical Centre, Pantai Hospital, Assunta Hospital, Tawakal Hospital, Pathology and Diagnostic laboratory, Pantai Premier Pathology and Ace Labsystem have accepted our students for internship. The duration of the internships is eight weeks, from December to January of the following year. The School will conduct a briefing for students prior to their internship to advise you on the procedures involved and what to expect in your placements.

BACHELOR OF SCIENCE (HONOURS)



DURATION

1 year



INTAKES

February and July

The Science Honours program is a one year degree that eligible students may opt to pursue after the first three years of undergraduate study. The Honours program requires the completion of courseworks and a research project. A key component of the course is the completion of a original research project under the supervision of a member of our academic staff culminating in the presentation of a thesis. The Honours program is a pathway for postgraduate study of Master of Science or Doctor of Philosophy. The program provides students with a rich intellectual experience and practical challenges in their chosen field of research expertise. You will acquire a range of technical, project management and communication skills. You will also gain generic soft skills that are transferable across industries.

AREAS OF SPECIALISATION

- Biotechnology
- Food science and technology
- Medical bioscience
- Medicinal chemistry
- Psychology (*only February intake)
- Tropical environmental biology

ENTRY REQUIREMENTS

For admission into Science Honours course, students must complete the requirement for the Bachelor of Science degree or a comparable qualification and obtained a distinction grade average (70%) or above in 24 points of studies in relevant units at level 3 and meet the normal Monash University English language requirements for undergraduate students.



MASTER OF SCIENCE



DURATION

2 Years (Full-time)
4 Years (Part-time)*

*Part-time studies not available for international students



INTAKES

Throughout the year
Subject to availability of supervision

The Master of Science degree allows candidates to undertake independent research in a specific area of science over a shorter period of time than a PhD. If you are unsure whether a PhD is right for you, a Master of Science can give you the experience of what studying for a doctorate might be like, whilst developing your skills and earning a degree that will enhance your employment prospects. If you decide that you are passionate about your research the option of upgrading to a PhD after the first year of the degree is available.

AREAS OF STUDY

- Biodiversity and Conservation
- Chemistry
- Environmental Science
- Food Science and Technology
- Genetics and Genomics
- Medical Bioscience
- Natural Products and Drug Discovery
- Microbiology
- Biotechnology
- Tropical Biology
- Infectious Diseases

STRUCTURE

Assessment is by thesis based on the results of research carried out by the candidate under supervision.

ENTRY REQUIREMENTS

Either a bachelor's degree requiring at least four years of full-time study, and which normally includes a research component in the fourth year, leading to an honours degree class 1, 2A or upper 2B (with an overall mark of at least 65 or above) level; or

- a course leading to a level rated by the relevant school, faculty and central university committees as equivalent to an honours class 1, 2A or upper 2B (with an overall mark of at least 65 or above) degree; or

- a master's degree that entails work, normally including a significant research component, at least equivalent to an honours degree (a 'significant research component' in a master's degree will vary from discipline to discipline). It is normally expected that at a minimum, a grade of upper 2B (with an overall mark of at least 65 or above) has been obtained for the research thesis or project. Where ungraded, examiners' reports will be taken into account; or
- have qualifications which in the opinion of the Monash Graduate Research Committee (GRC) are deemed equivalent.

Applicants must also satisfy Monash University's minimum English language proficiency requirements for admission to this research degree.



DOCTOR OF PHILOSOPHY



DURATION

3-4 Years (Full-time)
6-8 Years (Part-time)*

*Part-time studies not available for international students



INTAKES

Throughout the year
Subject to availability of supervision

A PhD in the School of Science allows candidates to independently formulate and investigate a research problem that will make a significant contribution to the discipline in which the candidate is enrolled. Monash Science PhD graduates are highly employable, with many pursuing careers in academia and industry around the world.

Your PhD research project should be conceived from the outset as clearly achievable within three years equivalent full-time study, with candidates expected to complete their degree within four years of equivalent full-time study.

Your degree will consist of the research thesis and will require the completion of research training activities or professional development training.

AREAS OF STUDY

- Biodiversity and Conservation
- Chemistry
- Environmental Science
- Food Science and Technology
- Genetics and Genomics
- Medical Bioscience
- Natural Products and Drug Discovery
- Microbiology
- Biotechnology
- Tropical Biology
- Infectious Diseases

STRUCTURE

Assessment is by thesis based on the results of research carried out by the candidate under supervision.

ENTRY REQUIREMENTS

The minimum qualifications for admission to PhD candidature are:

- a bachelor's degree requiring at least four years of full-time study in a relevant field, and which normally includes a research component in the fourth year, leading to an honours 1 or 2A in a relevant field; or
- a course leading to a level rated by the relevant department, faculty and committee as equivalent to an honours 1 or 2A in a relevant field; or
- a master's degree that entails work, normally including a significant research component, at least equivalent to an honours degree in a relevant field (a 'significant research component' in a master's degree will vary from discipline to discipline). It is normally expected that a grade of honours 2A has been obtained for the research thesis or project. Where ungraded, examiners' reports will be taken into account; or
- have qualifications which in the opinion of the Monash Graduate Research Committee (GRC) are deemed equivalent.

Applicants must also satisfy Monash University's minimum English language proficiency requirements for admission to this research degree.

ACADEMIC STAFF

All academic staff at the School of Science are active researchers in their disciplines and they use their research knowledge to inform their undergraduate teaching.

This research-led teaching culture encourages continual teaching innovations, which will in turn ensure students will be equipped with the most up-to-date

knowledge and skills relevant to their chosen course. The School's Professors are amongst the best academics in Malaysia and are experts in their field, publishing in leading journals and being regularly invited to give lectures at international conferences and symposia and consulted by Government and industry.

LABORATORY FACILITIES

The School of Science has state-of-the-art laboratories and equipment that enhance the student experience by providing the opportunity for students to engage in advanced laboratory experiments. Such facilities also help students understand the use of modern scientific instruments. Amongst the School's advanced facilities include laboratories and associated instruments for chemistry and biochemistry, cell culture and microscopy, food science, molecular genetics and genomics and medical science and biotechnology. In our laboratories, students will learn how to manipulate DNA, isolate and characterise chemicals and bioactive compounds, culture bacteria and cell lines, and sequence whole genomes.

The School has recently established a new state-of-the-art genomics laboratory, which has two of the latest bench-top DNA sequencers for both research and teaching. The School also makes use of Malaysia's greatest asset – its outdoor laboratories, from tropical rain forests to coral reefs.

If you are interested in a research degree, please contact the research office for further details

School Research Office

Email: scienceinquiries.res.my@monash.edu

The information in this Prospectus is correct at the time of publication. Monash University Malaysia reserves the right to change the information in line with updates, from time to time.

Please check the website(www.monash.edu.my) for the latest information.

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MQA/SWA0118, MUSC/APA/007 (PA), MQA/SWA0103, MQA/SWA0106,
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MUM/APA/019 (PA), MQA/SWA0125, MQA/SWA0131, MQA/SWA0160,
A7256, MUM/APA/015 (PA), MQA/SWA0129, MQA/SWA0130,
MQA/SWA0113, MQA/SWA0114, MQA/SWA0127

CONTACT US

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Monday to Friday 8.30am – 6.00pm

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Closed on weekends and public holidays.

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Monash University Malaysia is a joint venture

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