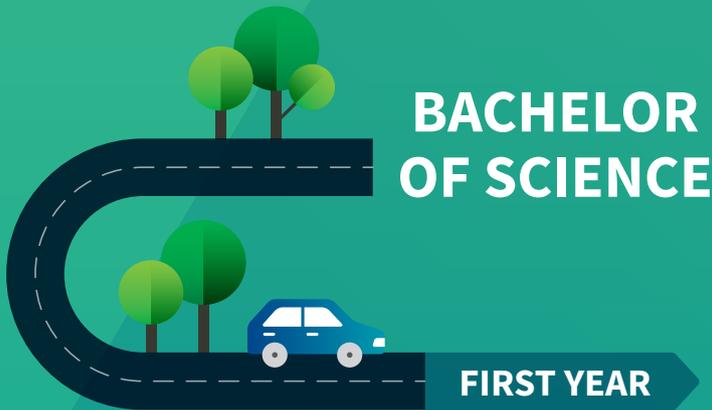




Faculty
of Science



Course
Planning
+
Advice
Guide





WELCOME TO

The Bachelor of Science

The Bachelor of Science is truly yours to customise. If you think you already know what you want to study, you can start on that path from day one.

If you're not so sure, or you have interests in many different areas of science, technology, engineering, medicine or health, you can leave your options open during your first year, while you explore. You'll be able to pick from 42 different majors - you're sure to find your passion within one of them!

Regardless of where you're starting from, we know that planning your course can feel equal parts exciting and overwhelming. Don't worry! We'll work with you throughout your studies to make sure you're on the right track.

This guide is an important resource to help you start planning. Make sure to hold onto it so you can refer back to it. For now, use it to explore the first year subjects required and recommended for each major, and find out a bit more about what each major involves and where it could take you in the future.

YOUR ROAD MAP TO THE BSC

If you picked up this guide at Science: Day 1, then congratulations!

You've already started your journey through the Bachelor of Science in the best way possible, by getting involved and getting advice. We want you to make the best decisions about your subject choices and major. If you need more course planning advice or assistance at any time during your studies, Stop 1 has experts who can help.

NAVIGATION TIPS

01

The Bachelor of Science is made up of 300 credit points, including science and breadth subjects. Each subject has a credit point value, usually 12.5.

02

Subjects are grouped by level rather than year, and this is indicated by the first number in the subject code:

MAST10006 is a Level 1 subject
CHEM20018 is a Level 2 subject



START HERE

PLANNING YOUR FIRST YEAR

Most of your first year subjects will be from Level 1 – you have to complete 50 credit points at Level 1 before you can enrol in any Level 2 subjects. Overall, you have to complete at least 62.5 credit points at Level 1 (that's usually five subjects) and this must include subjects from at least two different areas of science (for example, geology and chemistry, or mathematics and physics). You also can't complete more than three subjects from the same area at Level 1.

Finally, you'll pick your breadth subjects, which are subjects chosen from humanities, social sciences, design and performing/creative arts.

Breadth subjects let you explore other areas of study that might complement your future career, or discover a passion in another discipline. You can also follow 'breadth tracks', which are sets of three or more subjects that progressively develop your knowledge in a specific area.

You must complete 50 points of breadth during your BSc, and you can take up to 75 points. No more than 37.5 points can be taken at Level 1.

Most students choose to add one breadth subject to each semester in first year.

03

BEYOND FIRST YEAR

You don't need to choose your second or third year subjects yet, but it's important to know some of the rules around structuring your course. As with Level 1 subjects, you need to complete at least 62.5 points worth of Level 2 subjects during your BSc, and at least 75 points of Level 3 subjects, including your major subjects, which make up 50 points. You can't enrol in Level 3 subjects until you've completed 50 points at Level 2.

Remember, it's not just your science subjects that contribute to your credit point allowances at each level – breadth subjects are also included.



SUBJECT SETS ↓

The first thing to do is select the science subjects you need to keep your major options open.

To make this easier for you, we've created first year subject sets. There are nine subjects sets in total and, depending on which ones you choose, you'll be able to keep a range of different majors open as you head into second year. For this reason, we recommend completing at least two subject sets.

U-TURN ↩

Even though they're structured as 'sets', you're not locked in to both subjects. If you take a subject in Semester 1 and discover the area isn't for you, you don't have to take the corresponding set subject in Semester 2.

Don't be afraid to try something new and it's okay to change your mind!

Biological Sciences	BIOL10008 Introductory Biology: Life's Machinery + BIOL10010 Introductory Biology: Life's Complexity OR BIOL10009 Biology: Life's Machinery + BIOL10011 Biology: Life's Complexity	SEM 1 SEM 2
Chemical Sciences	CHEM10003 Chemistry 1 + CHEM10004 Chemistry 2	SEM 1 SEM 2 SEM 2 SUMMER
Earth Sciences	EVSC10001 The Global Environment + ATOC10001 Wonders of the Weather +/OR ERTH10002 Understanding Planet Earth	SEM 1 SEM 2 SEM 2
Engineering Systems	ENGR10004 Engineering Systems Design 1 + ENGR10003 Engineering Systems Design 2	SEM 1 SEM 2 SEM 2 SUMMER
Geography	EVSC10001 The Global Environment + GEOG10001 Famine: The Geography of Scarcity	SEM 1 SEM 1
Information Technology	COMP10001 Foundations of Computing + COMP10002 Foundations of Algorithms	SEM 1 SEM 2 SEM 1 SEM 2
Mathematics & Statistics	MAST10006 Calculus 2 + MAST10007 Linear Algebra OR MAST10022 Linear Algebra: Advanced + MAST10021 Calculus 2: Advanced OR MAST10008 Accelerated Mathematics 1 + MAST10009 Accelerated Mathematics 2	SEM 1 SEM 2 SUMMER SEM 1 SEM 2 SUMMER SEM 1 SEM 2 SEM 1 SEM 2
Physical Sciences	PHYC10001/10003 Physics 1 + PHYC10002/10004/10006 Physics 2	SEM 1 SEM 2
Psychological Sciences	PSYC10003 Mind, Brain & Behaviour 1 + PSYC10004 Mind, Brain & Behaviour 2	SEM 1 SEM 2



We have nine stand-alone science subjects, or you can take single subjects from the subject sets (though some of the Semester 2 options will have prerequisites).

<p>BIOL10001 Biology of Australian Flora & Fauna</p> <p>SEM 2</p> <p>Associated subject area: Biological Sciences</p>	<p>GENE10001 Genetics in the Media</p> <p>SEM 1</p> <p>Associated subject area: Biological Sciences</p>	<p>ERTH10003 Geology for Engineers</p> <p>SEM 2</p> <p>Associated subject areas: Earth Sciences/ Engineering Systems</p>	<p>ENVS10001 Natural Environments</p> <p>SEM 1 SEM 2</p> <p>Associated subject area: Geography</p>	<p>ENVS10006 Mapping Environments</p> <p>SEM 1</p> <p>Associated subject areas: Information Technology/ Geography</p>
<p>MAST10010 Data Analysis</p> <p>SEM 2</p> <p>Associated subject area: Mathematics & Statistics</p>	<p>MULT10011 Introduction to Life, Earth & Universe</p> <p>SEM 1</p> <p>Associated subject area: Physical Sciences</p>	<p>PHYC10008 From the Solar System to the Cosmos</p> <p>SEM 2</p> <p>Associated subject area: Physical Sciences</p>	<p>SCIE10004 Human Sciences: From Cells to Society</p> <p>SEM 2</p> <p>Associated subject areas: Psychological Sciences/ Geography</p>	

If you have space in your course plan, you can then choose some other science subjects.

We're on the journey with you!

We send out **BSc_News** every fortnight, coming straight to your inbox full of events, study tips, experiences and job listings. Make sure you check your student emails regularly, as this is where you'll find out about great upcoming opportunities available! You can also find and follow the **Science Student News** page on Facebook.



Course planning – The basics

There are lots of sample course plans on the following pages, but let's keep things simple to start. Here are a few examples of first-year-only course plans, each keeping open a range of different options and opportunities.



To find out more about the Bachelor of Science course structure rules visit: science.unimelb.edu.au/students/plan-your-bsc-getting-started

Level 1

You must take at least 62.5 points of Level 1 subjects from at least two different areas of study.

Level 2

You must take at least 62.5 points of Level 2 subjects. You must have completed 50 points at Level 1 before enrolling in any Level 2 subjects.

Level 3

You must take at least 75 points of Level 3 subjects. This will include the subjects you take as part of your major, which will be 50 points in total. You must have completed 50 points at Level 2 before enrolling in any Level 3 subjects.

Level 1	Semester 1	Level 1 Science subject 12.5 credit points	Level 1 Science subject 12.5 credit points	Level 1 Science subject 12.5 credit points	Breadth
	Semester 2	Level 1 Science subject 12.5 credit points	Level 1 Science subject 12.5 credit points	Level 1/2 Science subject	Breadth
Level 2	Semester 1	Level 2 Science subject 12.5 credit points	Level 2 Science subject 12.5 credit points	Level 2 Science subject 12.5 credit points	Breadth or Science subject
	Semester 2	Level 2 Science subject 12.5 credit points	Level 2 Science subject 12.5 credit points	Level 1/2/3 Science subject	Breadth
Level 3	Semester 1	Level 3 Science subject 12.5 credit points	Level 3 Science subject 12.5 credit points	Level 3 Science subject 12.5 credit points	Breadth or Science subject
	Semester 2	Level 3 Science subject 12.5 credit points	Level 3 Science subject 12.5 credit points	Level 3 Science subject 12.5 credit points	Breadth

Sauyma is keeping open majors in **Climate & Weather, Geology, Mathematics & Statistics, Computing & Software Systems** and **Data Science**. Sauyma had a study score of 29 or more in VCE Specialist Mathematics 3/4, which was required for entry to Calculus 2.

Level 1	Semester 1	MAST10006 Calculus 2	COMP10001 Foundations of Computing	EVSC10001 The Global Environment	Breadth
	Semester 2	MAST10007 Linear Algebra	COMP10002 Foundations of Algorithms	ERTH10002 Understanding Planet Earth	ATOC10001 Climate & Weather

Emily is keeping **Engineering Systems, Biological Sciences** and **Chemistry** majors open, as well as meeting entry requirements for **Medicine, Dentistry** and **Physiotherapy** recommended or required subjects. This means she has to take four science subjects in Semester 2 (or complete Linear Algebra over in the Summer Semester). Emily completed VCE Chemistry 3/4, which was required for entry to Chemistry 1, and had a study score of 29 or more in VCE Specialist Mathematics 3/4, which was required for entry to Calculus 2.

Level 1	Semester 1	CHEM10003 Chemistry 1	BIOL10008 Introductory Biology: Life's Machinery	MAST10006 Calculus 2	Breadth
	Semester 2	CHEM10004 Chemistry 2	BIOL10010 Introductory Biology: Life's Complexity	ENGR10003 Engineering Systems Design 2	MAST10007 Linear Algebra

Anh is keeping **Physical Sciences** majors open (though without Chemical Sciences he won't be able to do the Chemical Physics specialisation in the Physics major) as well as majors in **Psychology** and **Mathematics & Statistics**. Anh completed VCE Physics 3/4, which was required for entry to Physics 1, and had a study score of 29 or more in VCE Specialist Mathematics 3/4, which was required for entry to Calculus 2.

Level 1	Semester 1	PHYC10003 Physics 1	MAST10006 Calculus 2	PSYC10003 Mind, Brain & Behaviour 1	Breadth
	Semester 2	PHYC10004 Physics 2: Physical Science & Technology	MAST10007 Linear Algebra	PSYC10004 Mind, Brain & Behaviour 2	Breadth

Your course plan

We've shown you how, now it's your turn! Use the blank grids below to start planning your course.

Level 1	Semester 1				
	Semester 2				
Level 2	Semester 1				
	Semester 2				
Level 3	Semester 1				
	Semester 2				
Level 1	Semester 1				
	Semester 2				
Level 2	Semester 1				
	Semester 2				
Level 3	Semester 1				
	Semester 2				
Level 1	Semester 1				
	Semester 2				
Level 2	Semester 1				
	Semester 2				
Level 3	Semester 1				
	Semester 2				

Subject sets

● Required for this major ▲ Recommended for this major

		Biological Sciences	Chemical Sciences	Earth Sciences	Engineering Systems	Geography
Majors in the Bachelor of Science	Agricultural Science	●	▲			
	Animal Health & Disease	●	●			
	Animal Science & Management	●	▲			
	Biochemistry & Molecular Biology	▲	●			
	Bioengineering Systems	●	●		●	
	Biotechnology	●	●			
	Cell & Developmental Biology	●	●			
	Chemical Systems		●		●	
	Chemistry	▲	●			
	Civil Systems			▲	●	
	Climate & Weather			●		
	Computational Biology	●				
	Computing & Software Systems					
	Data Science					
	Ecology & Evolutionary Biology	●				▲
	Ecosystem Science	●				
	Electrical Systems				●	
	Environmental Engineering Systems	●			●	
	Environmental Science	●	▲	▲		▲
	Food Science	●	●			
	Genetics	●	▲			
	Geography			▲		▲
	Geology		▲	●		
	Human Nutrition		●			
	Human Structure & Function	●	▲			
	Immunology	●	●			
	Infection & Immunity	●	▲			
	Marine Biology	●	▲	▲		
	Mathematical Physics					
	Mathematics & Statistics					
	Mechanical Systems				●	
	Mechatronics Systems				●	
	Microbiology	●	▲			
	Neuroscience	●	▲			
	Pathology	●	●			
Pharmacology	●	●				
Physics						
Physiology	●	▲				
Plant Science	●					
Psychology						
Spatial Systems				▲		
Zoology	●	▲				

Information Technology	Mathematics and Statistics	Physical Sciences	Psychological Sciences	Additional information
		▲		One Level 1 Physics subject is required if Physics was not completed in Year 12
	●			BIOL10004 and CHEM10003 are required
	●			
	▲	▲		
	●			MAST10006 and ATOC10001 are required
●	●			BIOL10005 is required
●	●			
●	●			
	●	●		One Level 1 Mathematics and Statistics subject is required PHYC10004 or PHYC10002 is the required Semester 2 choice
	●			BIOL10004 is required
	▲			One Level 1 Mathematics and Statistics subject is required BIOL10004 and CHEM10003 are required
				ERTH10002 is required
	●	●		
	●			
	●	●		
	●	●		
			▲	
	●	●		
			●	
▲	●			

Bachelor of Science

BIOLOGICAL SCIENCES



SUBJECT SET

BIOL10008

Introductory Biology: Life's Machinery

+

BIOL10010

Introductory Biology: Life's Complexity

OR

BIOL10009

Biology: Life's Machinery

+

BIOL10011

Biology: Life's Complexity

WHY STUDY BIOLOGICAL SCIENCES?

All life shares a common ancestor, so whether your end goal is medical, veterinary or other health sciences, agriculture, ecology, conservation, or just a solid understanding of how the biosphere works, it all starts in the same place. 24 of the 42 majors in the Bachelor of Science require this subject set, so if you want to keep your future study and career options wide open, study biological sciences in your first year. We cover the full spectrum, from DNA to cells, individuals, populations and ecosystems.

Majors

This subject set is a requirement for the following majors:

- » Agricultural Science
- » Animal Health & Disease
- » Animal Science & Management
- » Bioengineering Systems
- » Biotechnology
- » Cell & Developmental Biology
- » Computational Biology
- » Ecology & Evolutionary Biology
- » Ecosystem Science
- » Environmental Engineering Systems
- » Environmental Science
- » Food Science
- » Genetics
- » Human Structure & Function
- » Immunology
- » Infection & Immunity
- » Marine Biology
- » Microbiology
- » Neuroscience
- » Pathology
- » Pharmacology
- » Physiology
- » Plant Science
- » Zoology

See the subject sets matrix on page 08 to find out about other required and recommended subject sets for each major.

Which Biological Sciences subjects should I take?

That depends! There are several subjects available, and you'll choose based on your existing biology knowledge. Both the introductory and the standard subjects meet the prerequisites of the Biological Sciences subject set.

BIOL10008 Introductory Biology: Life's Machinery

This subject is for students who did not complete (or scored below 25 in) VCE Biology 3/4 (or equivalent). It forms a subject set with BIOL10010 Introductory Biology: Life's Complexity.

BIOL10009 Biology: Life's Machinery

Choose this subject if you scored 25 or over in VCE Biology 3/4 (or equivalent). It forms a subject set with BIOL10011 Biology: Life's Complexity.

BIOL10010 Introductory Biology: Life's Complexity

This subject is for students who did not complete (or scored below 25 in) VCE Biology 3/4 (or equivalent). It forms a subject set with BIOL10008 Introductory Biology: Life's Machinery.

BIOL10011 Biology: Life's Complexity

Choose this subject if you scored 25 or over in VCE Biology 3/4 (or equivalent). It forms a subject set with BIOL10009 Biology: Life's Machinery.

Other Biological Sciences subjects

Interested in biology, but not keen on the Biological Sciences subject set? Or looking to expand upon it? These subjects are available to all BSc students as science electives. Remember, you must complete Level 1 subjects from at least two different areas of science and you can take a maximum of three subjects from any one area.

BIOL10001 Biology of Australian Flora and Fauna

Explore the natural history of Australia and examine the biology of our unique plants, animals and ecological communities across terrestrial, freshwater and marine environments.

GENE10001 Genetics in the Media

So CSI: Miami isn't the real deal?! Learn to evaluate the claims made in films and TV regarding the use of genetic analysis in areas including crime and identification.



DETOUR

Go global! Did you know that the University of Melbourne has exchange partnerships with over 200 universities around the world?

We encourage all our students to hop on a plane to Germany, America, Canada, China, India or, well, anywhere in pursuit of an international experience. Exchange has never been easier! Stop 1 hosts information sessions for students who want to study overseas – most plan to go in the second semester of second year, so you'll need to get organised early.

SAMPLE COURSE PLAN

Bachelor of Science, major in Genetics

This is a sample course plan and may be varied. It is not indicative of all course plans under this major and it assumes completion of VCE Chemistry 3/4 (or equivalent) and a study score of 25 or over in VCE Biology (or equivalent). This course plan has been structured in a way that leaves the Microbiology major open until the end of Level 2.

Level 1	Sem 1	BIOL10009 Biology: Life's Machinery	CHEM10003 Chemistry 1	PHYC10009 Foundations of Physics	Breadth
	Sem 2	BIOL10011 Biology: Life's Complexity	CHEM10004 Chemistry 2	SCIE10004 Human Sciences	Breadth
Level 2	Sem 1	GENE20001 Foundations of Genes & Genomes	MAST20031 Analysis of Biological Data	MIIM20001 Principles of Microbiology & Immunology	Breadth or Science subject
	Sem 2	GENE20004 Applications of Genetics & Genomes	MIIM20002 Microbes, Infections & Responses	BCMB Biochemistry & Molecular Biology	Breadth
Level 3	Sem 1	GENE30002 Genes: Organisation & Function	GENE30001 Evolutionary Genetics & Genomics	MIIM30011 Medical Microbiology: Bacteriology	Breadth or Science subject
	Sem 2	GENE30004 Genetic Analysis	GENE30005 Human & Medical Genetics	MIIM30014 Medical Microbiology: Virology	Breadth

● Subjects leading to the major ● Other Science subjects ● Major subjects ● Breadth



SUBJECT SET

CHEM10003
Chemistry 1

+

CHEM10004
Chemistry 2

WHY STUDY CHEMICAL SCIENCES?

So, what is chemistry all about? The better question is, what isn't chemistry all about? Whether it's harnessing renewable energy sources, next-gen nanotechnology, or new medical breakthroughs, chemistry is an ever-present and vital tool for shaping the technologies of tomorrow. The future of science is multidisciplinary, and chemistry sits at the intersection of so much that will change our world over the coming century. Study chemistry and you could be the next Rosalind Franklin, or, well, you tell us...

Majors

This subject set is a requirement for the following majors:

- » Animal Health & Disease
- » Biochemistry & Molecular Biology
- » Bioengineering Systems (CHEM10003 only)
- » Biotechnology
- » Cell & Developmental Biology
- » Chemical Systems
- » Chemistry
- » Food Science (CHEM10003 only)
- » Human Nutrition
- » Immunology
- » Pathology
- » Pharmacology

▶ See the subject sets matrix on page 08 to find out about other required and recommended subject sets for each major.

Which Chemistry subjects should I take?

That depends! There are several subjects available, and you'll choose based on your existing chemistry knowledge.

Semester 1 – Choose from:

CHEM10007 Fundamentals of Chemistry

This foundation subject doesn't assume any background knowledge of chemistry. If you haven't completed VCE Chemistry 3/4 (or equivalent), you must take this subject to proceed with the Chemical Sciences subject set.

CHEM10003 Chemistry 1

You can choose this subject if you've completed VCE Chemistry 3/4 (or equivalent). This is the standard Semester 1 subject choice for the Chemical Sciences subject set.

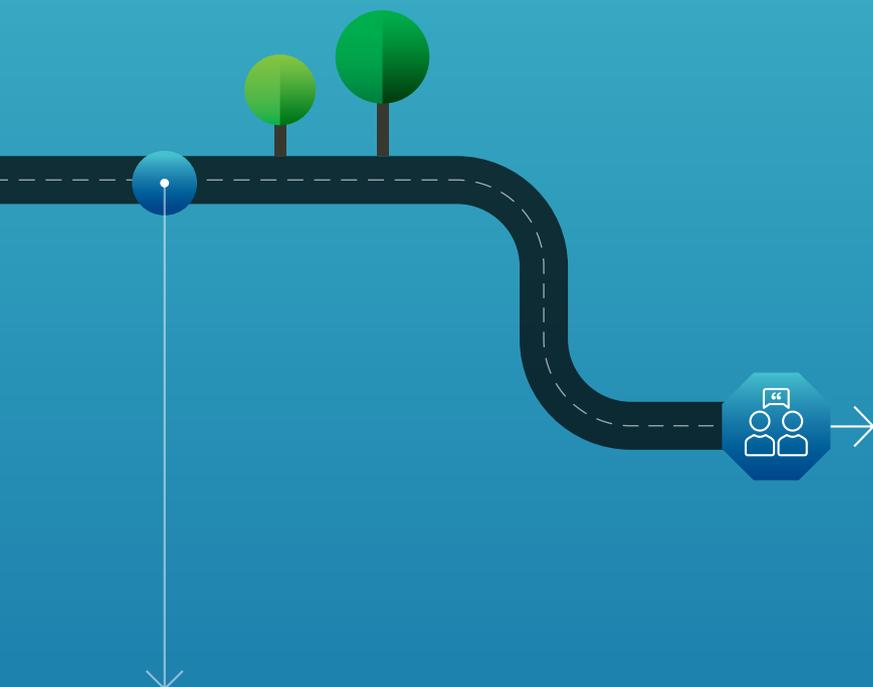
Semester 2

CHEM10003 Chemistry 1

If you completed CHEM10007 in Semester 1, you'll be eligible to proceed with this subject in Semester 2.

CHEM10004 Chemistry 2

If you completed CHEM10003 in Semester 1, you'll be eligible to proceed with this subject in Semester 2. This is the standard Semester 2 subject choice for the Chemical Sciences subject set. Students who achieved excellent results in CHEM10007 in Semester 1 might also be invited to enrol in this subject in place of CHEM10003. This subject is also available during Summer Semester, allowing students who started with CHEM10007 to complete the subject set.



DRIVING PRACTICE

There are mentoring opportunities available at every stage of your degree!



First up, register for peer mentoring to get support and insights from current students, who can help make your transition to university as smooth as possible.



Then, in second year, start one-on-one academic advising in your area of interest.



Finally, in third year, apply for the STEM Industry Mentoring Program and meet with one of our experienced alumni working in a field that aligns with your interests.

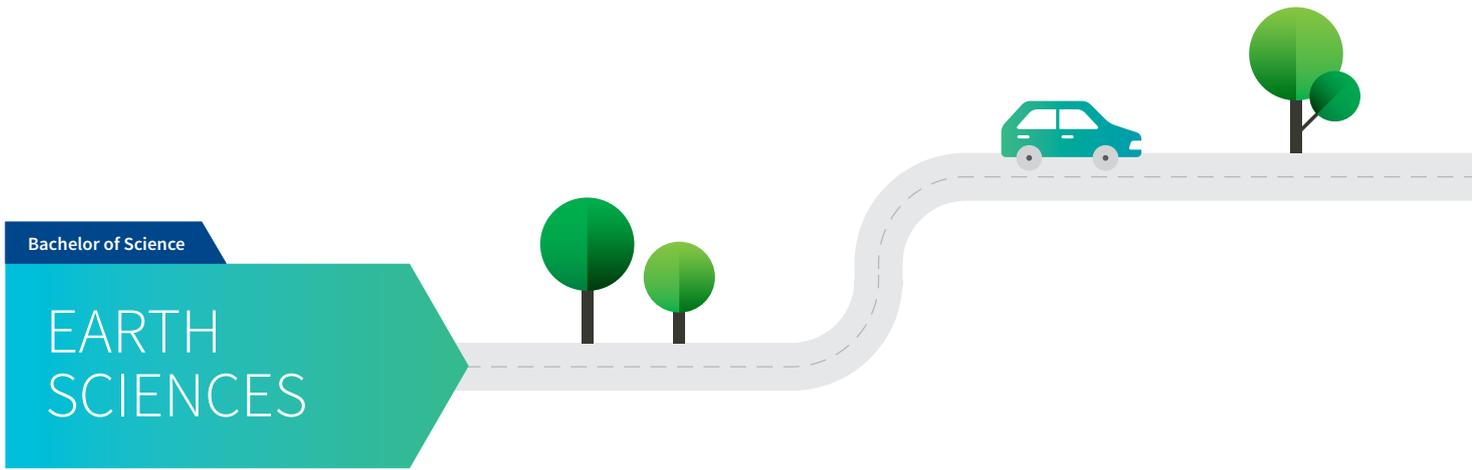
SAMPLE COURSE PLAN

Bachelor of Science, major in Chemistry (Chemistry specialisation)

This is a sample course plan and may be varied. It is not indicative of all course plans under this major and it assumes completion of VCE Chemistry 3/4 (or equivalent) and a study score of 25 or above in VCE Biology (or equivalent).

Level 1	Sem 1	CHEM10003 Chemistry 1	BIOL10009 Biology: Life's Machinery	MAST10005 Calculus 1	Breadth
	Sem 2	CHEM10004 Chemistry 2	BIOL1011 Biology: Life's Complexity	MAST10006 Calculus 2	Breadth
Level 2	Sem 1	CHEM20018 Chemistry: Reactions & Synthesis	BCMB20002 Biochemistry & Molecular Biology	BCMB20005 Techniques in Molecular Science	Breadth or Science subject
	Sem 2	CHEM20020 Chemistry: Structure & Properties	CHEM20019 Practical Chemistry 2	PHRM20001 Pharmacology: How Drugs Work	Breadth
Level 3	Sem 1	CHEM30016 Reactivity & Mechanism	CHEM30015 Advanced Practical Chemistry	Breadth	Breadth or Science subject
	Sem 2	CHEM30014 Specialised Topics in Chemistry B	CHEM30012 Analytical & Environmental Chemistry	BCMB30001 Protein Structure & Function	PHRM30008 Drugs: From Discovery to Market

● Subjects leading to the major ● Other Science subjects ● Major subjects ● Breadth



SUBJECT SET

EVSC10001

The Global Environment

and one/both from:

ATOC10001

Wonders of the Weather

+

ERTH10002

Understanding Planet Earth

WHY STUDY EARTH SCIENCES?

Combine the experimental side of chemistry and the hands-on work of biology, with the analytical and spatial aspects of maths and the global focus of geography and environmental sciences. That's Earth Sciences! Are you fascinated by extreme weather events, and how we might predict and even prevent climate change? Or are you curious about the role geologists play in the exploration of our solar system and the mission to Mars? Maybe you just want to know more about Earth's fossil records or its thousands of volcanos. In any case, Earth Sciences has the answers you're looking for. And, if we don't, we'll work with you to find them!

Majors

This subject set is recommended for the following majors:

- » Climate & Weather (ATOC10001)
- » Geology (ERTH10002 required)



See the subject sets matrix on page 08 to find out about other required and recommended subject sets for each major.

Which Earth Sciences subjects should I take?

ATOC10001 Wonders of Weather

Learn about how the atmosphere and oceans determine many aspects of our lives, exploring questions such as what controls when and where it rains, the ocean currents, seasonal snowfalls and tropical cyclones.

EVSC10001 The Global Environment

This subject introduces you to geology, geography, climate and environmental science, providing an overview of the processes controlling the formation and evolution of our global environment, right back to the origin of Earth as a planet within the solar system.

ERTH10002 Understanding Planet Earth

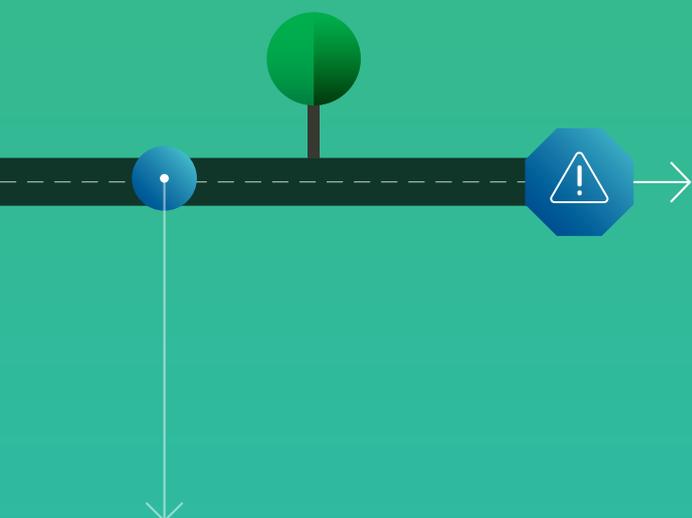
Dig deeper into the processes governing the geological evolution of our Earth. As part of this subject, you'll participate in a three-day field trip, and gain hands-on experience investigating Victoria's geology and fossils.

Other Earth Sciences subjects

Interested in Earth sciences, but not keen on the subject set? Or looking to expand upon it? These subjects are available to all BSc students. Remember, you must complete Level 1 subjects from at least two different areas of science and you can take a maximum of three subjects from any one area.

ERTH10003 Geology for Engineers

Through practical classes, including a field trip, you'll explore the solid Earth and components that make up its surface, and learn about relevant engineering applications. You can't enrol in this subject if you've completed or enrolled in ERTH10002 Understanding Planet Earth.



CHANGED CONDITIONS

At some stage during your university experience, it's likely you might need some extra support.

This is completely normal and Stop 1 has a number of services and staff members to help. If you need personalised assistance due to an illness, issue or disability, if you're seeking financial support or if you just need someone to talk to, free and confidentially, Stop 1 is the place to go. They can also give you advice on applying for special consideration, or help you find housing and understand your tenancy rights.

SAMPLE COURSE PLAN

Bachelor of Science, major in Climate & Weather

This is a sample course plan and may be varied. It is not indicative of all course plans under this major and it assumes completion of VCE Physics 3/4 (or equivalent) and a score of 29 or over in VCE Specialist Mathematics 3/4 (or equivalent).

Level 1	Sem 1	EVSC10001 The Global Environment	MAST10006 Calculus 2	PHYC10003 Physics 1	Breadth
	Sem 2	ATOC10001 Wonders of the Weather	MAST10007 Linear Algebra	COMP10001 Foundations of Computing	Breadth
Level 2	Sem 1	ATOC20001 Weather & Climate Systems	MAST20009 Vector Calculus	MAST20026 Real Analysis	Breadth or Science subject
	Sem 2	ERTH20003 Past Climates: Icehouse to Greenhouse	ERTH20002 Environmental Geosciences	MAST20030 Differential Equations	Breadth
Level 3	Sem 1	ATOC30004 Dynamical Meteorology & Oceanography	ATOC30008 Atmospheric Processes & Composition	MAST30021 Complex Analysis	Breadth or Science subject
	Sem 2	ATOC30006 Modern & Future Climate	ATOC30003 Atmosphere Ocean Interaction	MAST30028 Numerical Methods & Scientific Computing	Breadth

● Subjects leading to the major ● Other Science subjects ● Major subjects ● Breadth

Bachelor of Science, major in Geology

This is a sample course plan and may be varied. It is not indicative of all course plans under this major and it assumes completion of VCE Chemistry 3/4 (or equivalent). This course plan has been structured in a way that leaves the Environmental Science major (Conservation & Ecosystems specialisation) open until the end of Level 2.

Level 1	Sem 1	EVSC10001 The Global Environment	BIOL10008 Introductory Biology: Life's Machinery	CHEM10003 Chemistry 1	Breadth
	Sem 2	ERTH10002 Understanding Planet Earth	BIOL10010 Introductory Biology: Life's Complexity	CHEM10004 Chemistry 2	Breadth
Level 2	Sem 1	GEOL20002 Structural & Metamorphic Geology	GEOL20003 Earth Composition, Minerals & Magmas	MAST20031 Analysis of Biological Data	Breadth
	Sem 2	GEOL20004 Field Mapping & Sedimentary Geology (June)	ECOL20003 Ecology	ERTH20003 Past Climates: Icehouse to Greenhouse	Breadth or Science subject
Level 3	Sem 1	GEOL30002 Tectonics & Geodynamics (February)	GEOL30004 Geochemistry & Petrogenesis	EVSC30003 Environmental Risk Assessment	Breadth
	Sem 2	GEOL30003 Sedimentary Geology	GEOL30006 Economic Geology	EVSC30002 Problem Solving in Environmental Science	Breadth or Science subject

● Subjects leading to the major ● Other Science subjects ● Major subjects ● Breadth

Bachelor of Science

ENGINEERING SYSTEMS



SUBJECT SET

ENGR10004

Engineering Systems Design 1

+

ENGR10003

Engineering Systems Design 2

WHY STUDY ENGINEERING SYSTEMS?

Are you a problem-solver? An innovator? Do you like to pull things apart and put them back together again just to see how they work? Then engineering systems may be the right choice for you. Design and build an interplanetary spaceship, or an even better version of the International Space Station that could make living in space more comfortable. Learn how to build machines, engines and structures that are durable and sustainable in the face of climate change. Fulfil your passion for building and designing, or work towards your career as a certified engineer.

Majors

This subject set is a requirement for the following majors:

- » Bioengineering Systems
- » Chemical Systems
- » Civil Systems
- » Electrical Systems
- » Environmental Engineering Systems
- » Mechanical Systems
- » Mechatronics Systems



See the subject sets matrix on page 08 to find out about other required and recommended subject sets for each major.

Which Engineering Systems subjects should I take?

ENGR10004 Engineering Systems Design 1

Explore the world of engineering through a mix of design projects, interactive workshops and lectures centring on the engineering method - the approach to problem solving and engineering design that makes engineers unique.

ENGR10003 Engineering Systems Design 2

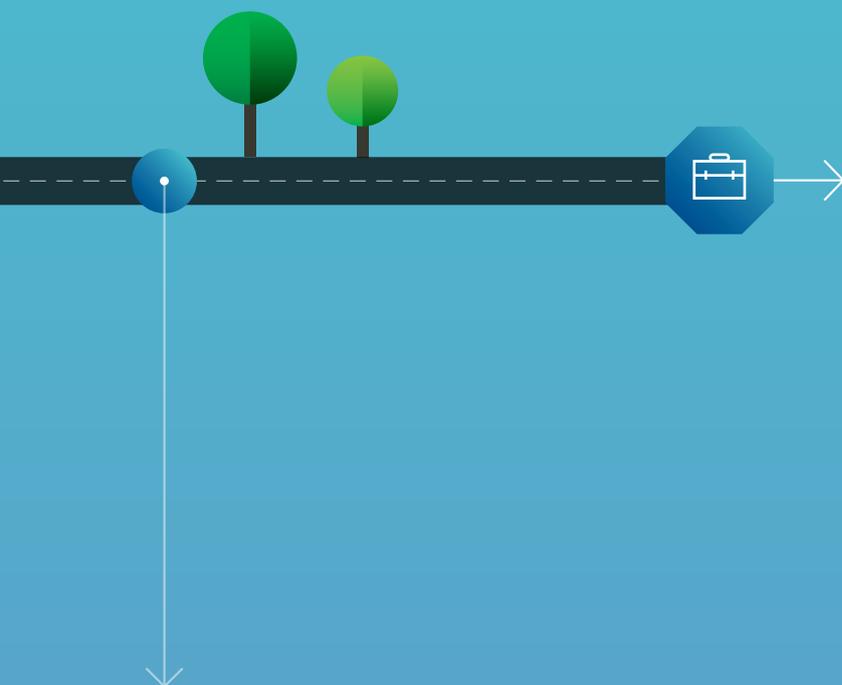
Develop your understanding of the engineering method and the importance of engineering in society. You'll focus on inter-relationships in engineering systems, drawing on important examples from lightweight structures, programming and digital electronic circuits.

Other Engineering Systems subjects

Interested in engineering, but not keen on the Engineering Systems subject set? Or looking to expand upon it? This subject is available to all BSc students. Remember, you must complete Level 1 subjects from at least two different areas of science and you can take a maximum of three subjects from any one area.

ERTH10003 Geology for Engineers

Through practical classes, including a field trip, you'll explore the solid Earth and components that make up its surface, and learn about relevant engineering applications.



TUNE UP

Keep your studies on track and continue building your job skills with support from the Stop 1 course and careers advisors.

You'll have access to workshops and one-on-one tutorials to help you with your classes, and you can get tips on improving your resume, succeeding in job interviews and general career preparation. If you need assistance picking or enrolling in subjects and planning your course going forward, whether with work or graduate study in mind, Stop 1 can help with that as well.

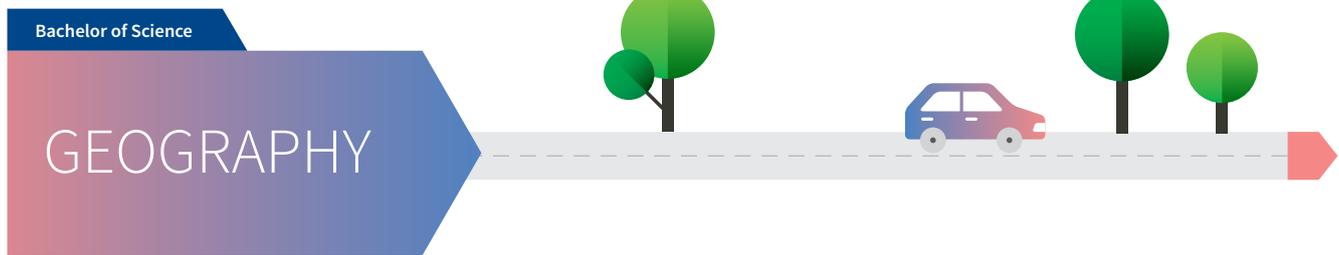
SAMPLE COURSE PLAN

Bachelor of Science, major in Environmental Engineering Systems

This is a sample course plan and may be varied. It is not indicative of all course plans under this major and it assumes a score of 29 or over in VCE Specialist Mathematics 3/4 (or equivalent).

Level 1	Sem 1	ENGR10004 Engineering Systems Design 1	MAST10006 Calculus 2	BIOL10008 Introductory Biology: Life's Machinery	Breadth
	Sem 2	ENGR10003 Engineering Systems Design 2	MAST10007 Linear Algebra	BIOL10011 Biology: Life's Complexity	Breadth or Science subject
Level 2	Sem 1	MAST20029 Engineering Mathematics	MAST20031 Analysis of Biological Data	EVSC20007 Modelling the Real World	Breadth
	Sem 2	ENEN20002 Earth Processes for Engineering	COMP20005 Engineering Computation	SCIE20001 Thinking Scientifically	Breadth or Science subject
Level 3	Sem 1	ENGR30002 Fluid Mechanics	CVEN30008 Engineering Risk Analysis	GEOM30009 Imaging the Environment	Breadth
	Sem 2	ENEN30001 Environmental Engineering Systems Capstone	BMEN30007 Biotransport Processes	CVEN30010 Systems Modelling & Design	Breadth

● Subjects leading to the major ● Other Science subjects ● Major subjects ● Breadth



SUBJECT SET

GEOG10001

Famine: The Geography of Scarcity

+

EVSC10001

The Global Environment

WHY STUDY GEOGRAPHY?

Our society is shaped by where we live. Geography is the who, what, where, when and why of us and our place in the world. If you're curious about how the natural, built and urban environments affect our societies and biodiversity, geography combines the understanding of environmental and ecological processes with observations of how humans interact with their environments through time. Study geography and find out how to build disaster resilient cities, understand the underlying causes of famine and forced migration, and learn about the ecology and biogeography of Australia and the Asia-Pacific region. And while you're at it, learn to unlock powerful features on Google maps that you've never even imagined.

Majors

This subject set is a requirement for the following majors:

» Geography

▶ See the subject sets matrix on page 08 to find out about other required and recommended subject sets for each major.

Which Geography subjects should I take?

GEOG10001 Famine: The Geography of Scarcity

Learn about the physical and social drivers of famines and related crises in social-ecological systems, including the collapse of civilisations and violent conflicts that we believe were triggered by the scarcity of food, water and land.

EVSC10001 The Global Environment

This subject introduces you to geology, geography, climate and environmental science, providing an overview of the processes controlling the formation and evolution of our global environment, right back to the origin of Earth as a planet within the solar system.

Other Geography subjects

Interested in geography, but not keen on the subject set? Or looking to expand upon it? These subjects are available to all BSc students. Remember, you must complete Level 1 subjects from at least

two different areas of science and you can take a maximum of three subjects from any one area.

ENVS10001 Natural Environments

Learn about the processes behind the sustainable management of our natural resources through topics such as hydrology and agriculture. You'll also build practical skills in landscape assessment and interpretation.

SCIE10004 Human Sciences: From Cells to Societies

Investigate the different perspectives making up our understanding of human sciences at all scales, from evolutionary biology to psychology and geography.

ENVS10006 Mapping Environments

Explore how information is produced and used to support decision making in urban and rural environments. Develop your spatial literacy and learn about methods of data collection, mapping, information communication through visualisation, and decision-support systems.

SAMPLE COURSE PLAN

Bachelor of Science, major in Geography

This is a sample course plan and may be varied. It is not indicative of all course plans under this major.

Level 1	Sem 1	GEOG10001 Famine: The Geography of Scarcity	EVSC10001 The Global Environment	BIOL10008 Introductory Biology: Life's Machinery	Breadth
	Sem 2	ERTH10002 Understanding Planet Earth	SCIE10004 Human Sciences: From Cells to Societies	BIOL10010 Introductory Biology: Life's Complexity	Breadth
Level 2	Sem 1	GEOG20002 Landscapes & Environmental Change	GEOG20001 Society & Environments	BOTA20001 Green Planet: Plants & the Environment	Breadth or Science subject
	Sem 2	ERTH20001 Dangerous Earth	GEOG20015 Environmental Change & the Human Journey	ECOL20003 Ecology	Breadth
Level 3	Sem 1	GEOG30025 Biogeography & Ecology of Fire (January)	GEOG30023 Global Climate Change in Context (February)	GEOG30001 Geomorphology: Catchment to Coast	Breadth or Science subject
	Sem 2	GEOG30024 Africa: Environment, Development, People	GEOG30021 The Disaster Resilient City	BOTA30004 Vegetation Management & Conservation	Breadth

● Subjects leading to the major ● Other Science subjects ● Major subjects ● Breadth

Intersection

The Environmental Science major is interdisciplinary, incorporating knowledge from many different areas of science. We encourage you to choose a subject from Chemical Sciences, Biological Sciences, Earth Sciences, and Mathematics and Statistics, and complete at least one set in full. You'll then be able to apply your broad scientific background to one of three specialisations – climate change, conservation and ecosystems, or natural resources and hazards.



SAMPLE COURSE PLAN



Bachelor of Science, major in Environmental Science (Natural Resources & Hazards specialisation)

This is a sample course plan and may be varied. It is not indicative of all course plans under this major and it assumes completion of VCE Chemistry 3/4 (or equivalent). This course plan has been structured in a way that leaves the Geology and Geography majors open until the end of Level 2.

Level 1	Sem 1	EVSC10001 The Global Environment	CHEM10003 Chemistry 1	BIOL10008 Introductory Biology: Life's Machinery	MAST10005 Calculus 1
	Sem 2	MAST10010 Data Analysis	ERTH10002 Understanding Planet Earth	BIOL10010 Introductory Biology: Life's Complexity	Breadth
Level 2	Sem 1	GEOL20002 Structural & Metamorphic Geology	EVSC20007 Modelling the Real World	EVSC20006 Energy & the Environment	Breadth
	Sem 2	GEOL20004 Field Mapping & Sedimentary Geology (June)	ERTH20001 Dangerous Earth	GEOG20015 Environmental Change & the Human Journey	Breadth
Level 3	Sem 1	EVSC30003 Environmental Risk Assessment	ERTH30001 Hydrogeology/ Environmental Geochemistry	GEOG30023 Global Climate in Context (February)	Breadth
	Sem 2	EVSC30002 Problem Solving in Environmental Science	GEOL30003 Sedimentary Geology	GEOG30021 The Disaster Resilient City	Breadth or Science subject

● Subjects leading to the major ● Other Science subjects ● Major subjects ● Breadth

Bachelor of Science

INFORMATION TECHNOLOGY



SUBJECT SET

COMP10001

Foundations of Computing

+

COMP10002

Foundations of Algorithms

WHY STUDY INFORMATION TECHNOLOGY?

The world is awash with information, and IT is the central nervous system of our modern world. The internet of things. The cloud. How do we store, secure, interpret and present the 2.5 quintillion bytes of data we produce every minute? The answer is in the hands of computer programmers, data scientists and other IT specialists. And consider this: solving problems in fields such as business, biology, physics, chemistry, engineering, humanities and social sciences often requires manipulating, analysing and visualising data through computer programming. Is IT the skill you need to stand out in your field?

Majors

This subject set is a requirement for the following majors:

- » Computational Biology
- » Computing & Software Systems
- » Data Science



See the subject sets matrix on page 08 to find out about other required and recommended subject sets for each major.

Which Information Technology subjects should I take?

COMP10001 Foundations of Computing

This subject teaches students with little or no background in computer programming how to design and write basic programs using a high-level procedural programming language, and to solve simple problems using these IT skills.

COMP10002 Foundations of Algorithms

Discover a system programming language that gives programmers detailed levels of control, explore a range of standard data structures and algorithmic techniques, and learn how to apply them to frequently encountered problems.

Other Information Technology subjects

Interested in Information Technology, but not keen on the subject set? Or looking to expand upon it? This subjects are available to all BSc students. Remember, you must complete Level 1 subjects from at least two different areas of science and you can take a maximum of three subjects from anyone area.

ENVS10006 Mapping Environments

Explore how information is produced and used to support decision making in urban and rural environments. Develop your spatial literacy and learn about methods of data collection, mapping, information communication through visualisation, and decision-support systems.

SCENIC ROUTE

There's a lot more to university than classes and study sessions!

Get involved by volunteering for programs like In2science, a classroom-based science mentoring program in low-socioeconomic high schools, or Science Delivery, which takes science on the road to regional or low-socioeconomic areas. Join a club to continue (or discover) an activity you love – sport, music, bushwalking, even Quidditch! The Science Student Society also hosts events, activities and free BBQs throughout the year. And look out for the other fantastic events happening on campus, from weekly concerts in North Court to our annual week-long Science Festival.

SAMPLE COURSE PLAN
Bachelor of Science, major in Computing & Software Systems

This is a sample course plan and may be varied. It is not indicative of all course plans under this major and it assumes a score of 29 or over in VCE Specialist Mathematics 3/4 (or equivalent). This course plan has been structured in a way that leaves the Psychology major open until the end of Level 2.

Level 1	Sem 1	COMP10001 Foundations of Computing	MAST10005 Calculus 1	PSYC10003 Mind, Brain & Behaviour 1	Breadth
	Sem 2	COMP10002 Foundations of Algorithms	MAST10007 Linear Algebra	PSYC10004 Mind, Brain & Behaviour 2	Breadth
Level 2	Sem 1	COMP20007 Design of Algorithms	COMP20008 Elements of Data Processing	PSYC20006 Biological Psychology	Breadth or Science subject
	Sem 2	INFO20003 Database Systems	SWEN20003 Object Oriented Software Development	PSYC20007 Cognitive Psychology	Breadth
Level 3	Sem 1	SWEN30006 Software Modelling and Design	COMP30023 Computer Systems	COMP30024 Artificial Intelligence	Breadth or Science subject
	Sem 2	COMP30022 IT Project	COMP30026 Models of Computation	COMP30019 Graphics and Interaction	Breadth

● Subjects leading to the major
 ● Other Science subjects
 ● Major subjects
 ● Breadth

SAMPLE COURSE PLAN
Bachelor of Science, major in Data Science

This is a sample course plan and may be varied. It is not indicative of all course plans under this major and it assumes a score of 29 or over in VCE Specialist Mathematics 3/4 (or equivalent). This course plan has been structured in a way that leaves the Ecosystem Science major open until the end of second year.

Level 1	Sem 1	COMP10001 Foundations of Computing	MAST10006 Calculus 2	BIOL10008 Introductory Biology: Life's Machinery	Breadth
	Sem 2	COMP10002 Foundations of Algorithms	MAST10007 Linear Algebra	BIOL10010 Introductory Biology: Life's Complexity	Breadth
Level 2	Sem 1	MAST20031 Analysis of Biological Data	MAST20004 Probability	ENST20001 Human Behaviour & Environment	Breadth or Science subject
	Sem 2	MAST20005 Statistics	COMP20008 Elements of Data Processing	ECOL20003 Ecology	Breadth
Level 3	Sem 1	COMP30027 Machine Learning	MAST30025 Linear Statistical Models	EVSC30006 Ecology of Urban Landscapes	Breadth or Science subject
	Sem 2	MAST30034 Applied Data Science	MAST30027 Modern Applied Statistics	SCIE30002 Science & Technology Internship	Breadth

● Subjects leading to the major
 ● Other Science subjects
 ● Major subjects
 ● Breadth

Bachelor of Science

MATHEMATICS & STATISTICS

SUBJECT SET

MAST10006

Calculus 2

+

MAST10007

Linear Algebra**OR**

MAST10022

Linear Algebra: Advanced

+

MAST10021

Calculus 2: Advanced**OR**

MAST10008

Accelerated Mathematics 1

+

MAST10009

Accelerated Mathematics 2

WHY STUDY MATHEMATICS AND STATISTICS?

Every scientist, engineer, medical specialist and economist uses maths and/or statistics, all the time. And there is so much more to it than you've studied in high school! Discover branches of mathematics and statistics that you never knew existed and learn to answer questions you might never have thought to ask.

Majors

This subject set is a requirement for the following majors:

- » Bioengineering Systems
- » Chemical Systems
- » Civil Systems
- » Climate & Weather
- » Computational Biology
- » Computing & Software Systems
- » Data Science
- » Electrical Systems
- » Environmental Engineering Systems
- » Mathematical Physics
- » Mathematics & Statistics
- » Mechanical Systems
- » Mechatronics Systems
- » Physics
- » Spatial Systems



See the subject sets matrix on page 08 to find out about other required and recommended subject sets for each major.

Which Mathematics and Statistics subjects should I take?

That depends! There are several subjects available, and you'll choose based on your existing maths and statistics knowledge.

MAST10005 Calculus 1

This subject is for students who want to proceed with the Mathematics & Statistics subject set, but who haven't

completed (or scored 28 or below in) VCE Specialist Mathematics 3/4 (or equivalent). You will then be eligible to move on to the standard subjects in the set.

MAST10006 Calculus 2

This, along with MAST10007 Linear Algebra, is the standard subject choice for the Mathematics & Statistics subject set. It is also available in Summer Semester, allowing students who started with MAST10005 to complete the subject set.

MAST10007 Linear Algebra

This, along with MAST10006 Calculus 2, is the standard subject choice for the Mathematics & Statistics subject set. It is also available in Summer Semester, allowing students who started with MAST10005 to complete the subject set.

MAST10008 Accelerated Mathematics 1

Students who scored 38 or above in VCE Specialist Mathematics 3/4 (or equivalent) are eligible to enrol in this subject to cover core first-year material as well as the equivalent of MAST20026 Real Analysis in an accelerated format.

MAST10009 Accelerated Mathematics 2

Students who scored 38 or above in VCE Specialist Mathematics 3/4 (or equivalent) are eligible to enrol in this subject to cover core first-year material as well as the equivalent of MAST20026 Real Analysis in an accelerated format.

MAST10022 Linear Algebra: Advanced

Students who scored 36 and above in VCE Specialist Mathematics 3/4 (or equivalent) are eligible to enrol in this subject, which will provide greater depth including an emphasis on mathematical rigour and proof.

MAST10021 Calculus 2: Advanced

Students who scored 36 and above in VCE Specialist Mathematics 3/4 (or equivalent) are eligible to enrol in this subject, which will provide greater depth including an emphasis on mathematical rigour and proof.

Other Mathematics and Statistics subjects

Interested in maths and/or statistics, but not keen on the Mathematics & Statistics subject set? Or looking to expand upon it? This subject is available to all BSc students. Remember, you must complete Level 1 subjects from at least two different areas of science and you can take a maximum of three subjects from any one area.

MAST10010 Data Analysis

Develop your understanding of the fundamental concepts of probability and statistics, and build the knowledge required for study of data analysis and experimental design.

SAMPLE COURSE PLAN

Bachelor of Science, major in Mathematics & Statistics (Pure Mathematics specialisation)

This is a sample course plan and may be varied. It is not indicative of all course plans under this major and it assumes a score of 29 or over in VCE Specialist Mathematics 3/4 (or equivalent). This course plan has been structured in a way that leaves the Computing & Software Systems major open until the end of Level 2.

Level 1	Sem 1	MAST10006 Calculus 2	COMP10001 Foundations of Computing	PHYC10009 Foundations of Physics	Breadth
	Sem 2	MAST10007 Linear Algebra	COMP10002 Foundations of Algorithms	PHYC10004 Physics 2: Physical Sciences & Technology	Breadth or Science subject
Level 2	Sem 1	MAST20026 Real Analysis	COMP20007 Design of Algorithms	Breadth or Science subject	Breadth
	Sem 2	MAST20022 Group Theory & Linear Algebra	MAST20009 Vector Calculus	INFO20003 Database Systems	SWEN20003 Object Oriented Software Development
Level 3	Sem 1	MAST30005 Algebra	MAST30021 Complex Analysis	SWEN30006 Software Modelling & Design	Breadth
	Sem 2	MAST30026 Metric & Hilbert Spaces	MAST30012 Discrete Mathematics	COMP30026 Models of Computation	Breadth

● Subjects leading to the major
 ● Other Science subjects
 ● Major subjects
 ● Breadth

*Completion with a score of H2A or above

Intersection

Computational Biology is an interdisciplinary major, incorporating study from a range of disciplines including maths, biology and computing. You might use this knowledge to help identify the genetic basis of disease, for example, or predict how ecological systems will respond to climate change.



SAMPLE COURSE PLAN


Bachelor of Science, major in Computational Biology

This is a sample course plan and may be varied. It is not indicative of all course plans under this major and it assumes completion of VCE Chemistry 3/4 (or equivalent) and a study score of either 29 or over in VCE Specialist Mathematics 3/4 (or equivalent). This course plan has been structured in a way that leaves the Genetics major open.

Level 1	Sem 1	MAST10006 Calculus 2	COMP10001 Foundations of Computing	BIOL10008 Introductory Biology: Life's Machinery	Breadth
	Sem 2	MAST10007 Linear Algebra	COMP10002 Foundations of Algorithms	BIOL10010 Introductory Biology: Life's Complexity	Breadth
Level 2	Sem 1	MAST20031 Analysis of Biological Data	CEDB20003 Fundamentals of Cell Biology	GENE20001 Principles of Genetics	Breadth
	Sem 2	COMP20008 Elements of Data Processing	GENE20004 Applications of Genetics & Genomics	Breadth or Science subject	Breadth
Level 3	Sem 1	MAST30032 Biological Modelling & Simulation	CEDB30002 - Concepts in Cell & Developmental Biology	GENE30001 Evolutionary Genetics & Genomics	GENE30002 Genes: Organisation & Function
	Sem 2	BIOL30003 Case Studies in Computational Biology	MAST30033 Statistical Genomics	GENE30004 Genetic Analysis	Breadth or Science subject

● Subjects leading to the major
 ● Other Science subjects
 ● Major subjects
 ● Breadth

Some common Mathematics & Statistics equivalencies

VCE 3/4	International Baccalaureate	Trinity College Foundation Studies	GCE A Level CIE (Cambridge)
Specialist Mathematics: ≥ 38	HL Mathematics: ≥ 6	Mathematics 2 and Mathematics 1: both ≥ 90	P1, P3 + 2 options: A, A*
Specialist Mathematics: 29-37	HL Mathematics: 4, 5	Mathematics 2 and Mathematics 1: 50-89	P1, P3 + 2 options: B, C
Specialist Mathematics: ≤ 29 Mathematical Methods: ≥ 25	SL Mathematics: ≥ 4	Mathematics 1: ≥ 50	

Bachelor of Science

PHYSICAL SCIENCES



SUBJECT SET

PHYC10001/10003

Physics 1

+

PHYC10002/10004/10006

Physics 2

WHY STUDY PHYSICAL SCIENCES?

Biology, chemistry, engineering, medicine – pull them apart bit by bit and, at their most fundamental level, they all come down to physics. So, if you want to understand how a bumblebee flies, or how human metabolism works, or how to design a wind turbine that doesn't fall down, study physics. You should also study physics if you are inspired by the beauty of the cosmos and want to reveal its mysteries, or you want to use the biggest machine ever built to observe the smallest particles ever found. Or if you just really like lasers.

Majors

This subject set is a requirement for the following majors:

- » Electrical Systems
- » Mathematical Physics
- » Mechanical Systems
- » Mechatronics Systems
- » Physics



See the subject sets matrix on page 08 to find out about other required and recommended subject sets for each major.

Which Physical Sciences subjects should I take?

That depends! There are several subjects available, and you'll choose initially based on your existing physics knowledge, and then on the area of physics you're most interested in.

Semester 1 – Choose from:

PHYC10009 Foundations of Physics

This subject is designed for students with minimal background in physics and will build your understanding of a range of important physics principles and applications.

PHYC10003 Physics 1

You can choose this subject if you've completed VCE Physics 3/4 (or equivalent). This is the standard Semester 1 subject choice for the Physical Sciences subject set. If you didn't complete VCE Specialist Mathematics 3/4 (or equivalent), it is recommended that you enrol in Calculus 1 as well.

PHYC10001 Physics 1: Advanced

This subject is for students who scored excellent results in VCE Units 3/4 Physics (or equivalent) – normally an unscaled score of at least 35 – and who want a deeper, more challenging introduction to physics.

Semester 2 – Choose from:

PHYC10004 Physics 2: Physical Sciences & Technology

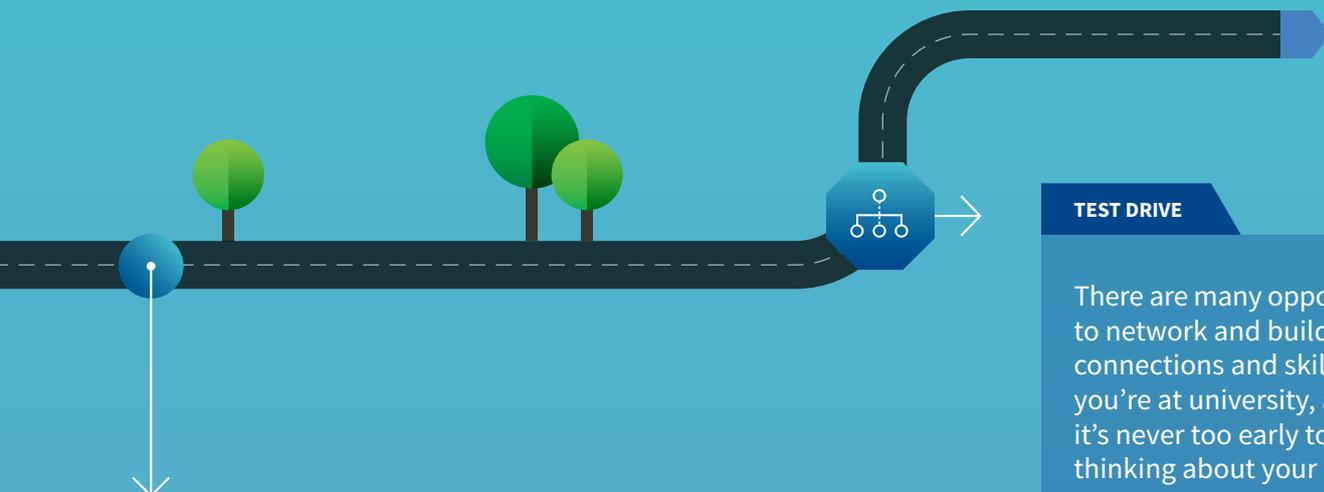
This is the recommended Semester 2 subject choice for students who want to major in Physics, Mathematical Physics or any Engineering Systems stream. You'll learn about principles of physics with applications relevant to these areas.

PHYC10006 Physics 2: Life Sciences & Environment

This is the recommended Semester 2 subject choice for students who want to major in one of the biomedical sciences. You'll learn about principles of physics with applications relevant to these areas.

PHYC10002 Physics 2: Advanced

If you completed PHYC10001 in Semester 1, you're encouraged to enrol in this subject in Semester 2, where you'll learn about the theory and applications of physics principles. This subject isn't available to students who completed PHYC10009 in Semester 1.



Other Physical Sciences subjects

Interested in physics, but not keen on the Physical Sciences subject set? Or looking to expand upon it? These subjects are available to all BSc students. Remember, you must complete Level 1 subjects from at least two different areas of science and you can take a maximum of three subjects from any one area.

PHYC10008 From the Solar System to the Cosmos

Explore all aspects of our universe, from the solar system we live in to the Milky Way and beyond.

MULT10011 Introduction to Life, Earth & Universe

Tackle the big questions through this subject, from asking about life on Earth to considering the structure of the universe.

TEST DRIVE

There are many opportunities to network and build connections and skills while you're at university, and it's never too early to start thinking about your career.

Local and international internships provide you with the opportunity to integrate what you've learnt while studying with genuine work experience, and we encourage you to look out for these opportunities. In addition to placements that we advertise in BSc_News and online, you'll be able to enrol in a research or internship subject in third year to gain hands-on experience in the workplace, for credit.

SAMPLE COURSE PLAN

Bachelor of Science, major in Physics (Physics specialisation)

This is a sample course plan and may be varied. It is not indicative of all course plans under this major and it assumes completion of VCE Physics 3/4 (or equivalent), VCE Chemistry 3/4 (or equivalent) and a score of 29 or over in VCE Specialist Mathematics 3/4 (or equivalent). This course plan has been structured in a way that leaves the Mathematics & Statistics major (Applied Mathematics specialisation) open until the end of Level 2.

Level 1	Sem 1	PHYC10003 Physics 1	MAST10006 Calculus 2	CHEM10003 Chemistry 1	Breadth
	Sem 2	PHYC10004 Physics 2: Physical Sciences & Technology	MAST10007 Linear Algebra	CHEM10004 Chemistry 2	Breadth
Level 2	Sem 1	PHYC20012 Quantum & Thermal Physics	PHYC20013 Laboratory & Computational Physics 2	MAST20009 Vector Calculus	Breadth or Science subject
	Sem 2	PHYC20015 Special Relativity & Electromagnetism	MAST20030 Differential Equations	MAST20026 Real Analysis	Breadth
Level 3	Sem 1	PHYC30018 Quantum Physics	PHYC30016 Electrodynamics	MAST30028 Numerical Methods & Scientific Computing	Breadth or Science subject
	Sem 2	PHYC30017 Statistical Physics	PHYC30021 Laboratory & Computational Physics 3	MAST30021 Complex Analysis	Breadth

● Subjects leading to the major ● Other Science subjects ● Major subjects ● Breadth

Bachelor of Science

PSYCHOLOGICAL SCIENCES



SUBJECT SET

PSYC10003

Mind, Brain & Behaviour 1

+

PSYC10004

Mind, Brain & Behaviour 2

WHY STUDY PSYCHOLOGICAL SCIENCES?

Admit it. Deep down, we all want to know what everyone else is thinking. Look at the most popular TED talks of all time – nearly all of them are about human psychology. Understanding human behaviour is hard, because how we behave is complex and keeps changing as our environment and technology changes. Whether you're just curious or looking to incorporate psychology into your future career, study psychological sciences to explore every stage of human behaviour, and learn the practical aspects of developmental, social and clinical psychology.

Majors

This subject set is a requirement for the following major:

» Psychology



See the subject sets matrix on page 08 to find out about other required and recommended subject sets for each major.

If you want to continue studying to become a registered psychologist, you need to start by completing 10 specified subjects that meet the requirements of the Australian Psychological Accreditation Council's (APAC) accredited sequence. You can still major in Psychology without completing this sequence, but you won't be eligible for graduate psychological studies.

Which Psychological Sciences subjects should I take?

PSYC10003 Mind, Brain & Behaviour 1

Learn all about the workings of the individual from a psychological perspective. This subject will help you consider the nature of a person's internal world, and the importance of its relationship to the external world.

PSYC10004 Mind, Brain & Behaviour 2

This subject explores the development of the individual and their interaction with their environment, and questions what the consequences are when this interaction goes smoothly - and when it doesn't. You'll examine the nature and development of personality and human interaction in social groups and cultural settings.

Psychological Sciences electives

Interested in psychology, but not keen on the Psychological Sciences subject set? Or looking to expand upon it? This subject is available to all BSc students. Remember, you must complete Level 1 subjects from at least two different areas of science and you can take a maximum of three subjects from any one area.

SCIE10004 Human Sciences: From Cells to Societies

Investigate the different perspectives making up our understanding of human sciences at all scales, from evolutionary biology to psychology and geography.



SAMPLE COURSE PLAN

Bachelor of Science, major in Psychology (with APAC sequence)

This is a sample course plan and may be varied. It is not indicative of all course plans under this major and it assumes a score of 25 or over in VCE Biology (or equivalent). This course plan has been structured in a way that leaves the Human Structure & Function major open until the end of Level 2.

Level 1	Sem 1	PSYC10003 Mind, Brain & Behaviour 1	BIOL10009 Biology: Life's Machinery	MAST10005 Calculus 1	Breadth
	Sem 2	PSYC10004 Mind, Brain & Behaviour 2	BIOL10011 Biology: Life's Complexity	MAST10010 Data Analysis 1	Breadth
Level 2	Sem 1	PSYC20006 Biological Psychology	PSYC20008 Developmental Psychology	ANAT20006 Principles of Human Structure	Breadth or Science subject
	Sem 2	PSYC20007 Cognitive Psychology	PSYC20009 Personality & Social Psychology	PHYS20008 Human Physiology	Breadth
Level 3	Sem 1	PSYC30013 Research Methods for Human Inquiry	PSYC30012 The Unconscious Mind	NEUR30003 Principles of Neuroscience	Breadth or Science subject
	Sem 2	PSYC30021 Psychological Science: Theory & Practice	PSYC30020 The Integrated Brain	OPTO30007 Visual Neuroscience	Breadth

● Subjects leading to the major ● Other Science subjects ● Major subjects ● Breadth

Bachelor of Science, major in Psychology (without APAC sequence)

This is a sample course plan and may be varied. It is not indicative of all course plans under this major.

Level 1	Sem 1	PSYC10003 Mind, Brain & Behaviour 1	BIOL1008 Introductory Biology: Life's Machinery	MAST10005 Calculus 1	Breadth
	Sem 2	PSYC10004 Mind, Brain & Behaviour 2	BIOL10011 Biology: Life's Complexity	MAST10010 Data Analysis 1	Breadth or Science subject
Level 2	Sem 1	PSYC20006 Biological Psychology	GENE20001 Foundations of Genetics & Genomics	PHYS2008 Human Physiology	Breadth
	Sem 2	PSYC20009 Personality and Social Psychology	PHYS20009 Research Based Physiology	ANAT20006 Principles of Human Structure	Breadth
Level 3	Sem 1	PSYC30013 Research Methods for Human Inquiry	PSYC30017 Perception, Memory & Cognition	NEUR30003 Principles of Neuroscience	Breadth or Science subject
	Sem 2	PSYC30021 Psychological Science: Theory & Practice	PSYC30022 Trends in Personality & Social Psychology	NEUR30005 Developmental Neurobiology	Breadth

● Subjects leading to the major ● Other Science subjects ● Major subjects ● Breadth



Where next?

GRADUATE PATHWAYS

Many Bachelor of Science students want to go on to graduate study, but don't necessarily know where. The BSc is structured to help you keep your options open while you make up your mind. And even if you think you know where you're going, this same structure will be an asset if you change your mind or decide to explore an alternative pathway. We've included some popular pathways below, but there are lots more available - visit study.unimelb.edu.au to explore.

FOR EXAMPLE...

You're thinking about becoming a doctor...

Biological Sciences subject set + Chemical Sciences subject set

Biochemistry & Molecular Biology

Cell & Developmental Biology

Marine Biology

Pathology and Pharmacology

Plus others!

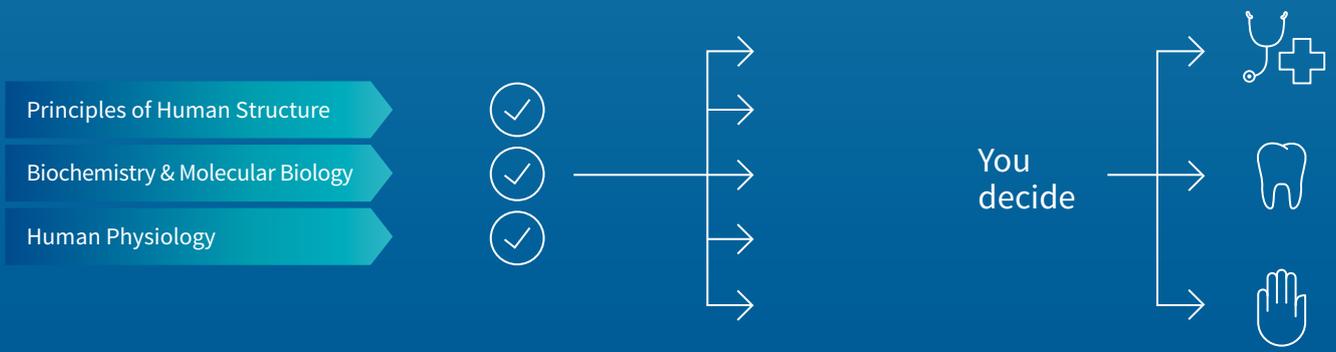
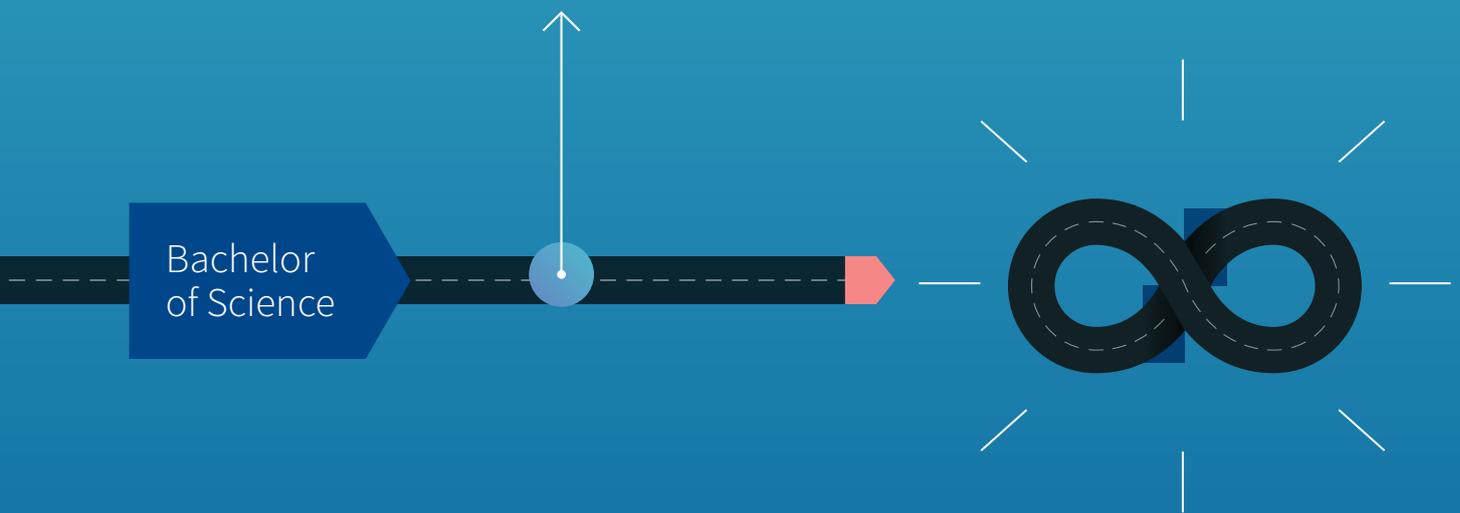
In first year, you should consider taking the Biological Sciences subject set and the Chemical Sciences subject set.

This keeps open close to 20 different majors, including Biochemistry & Molecular Biology, Cell & Developmental Biology, Marine Biology, Pathology and Pharmacology.

You *may* have noticed all our driving and travelling references throughout this guide – what we really want you to realise is that the Bachelor of Science is a road that leads to an infinite number of different destinations, and there’s often more than one way of getting where you’re going.

EXPRESS WAY

If you received a Graduate Degree Packaged offer, your place in your nominated graduate course is already secured. But if you do change your mind during your BSc, that’s ok! You’ll be able to apply for a new graduate course through the usual pathways as well.



→ You are now eligible to take the second year subjects which are recommended for the Doctor of Medicine – Principles of Human Structure, Biochemistry & Molecular Biology and Human Physiology.

→ It doesn't matter what you major in, though lots of students who are interested in a health sciences pathway choose majors like Human Structure & Function or Physiology.

→ You're now eligible to apply for the Doctor of Medicine, and you've also met the prerequisites for the Doctor of Dental Surgery and the Doctor of Physiotherapy, if you completed the subjects mentioned here. If you decide medicine's not for you after all, you've still got plenty of possible options.

FOR EXAMPLE...

You're interested in earth and the environment...

Earth Sciences subject set + Mathematics & Statistics subject set + Geography subject set

- Climate & Weather
- Environmental Science
- Geography and Geology
- Plus others!

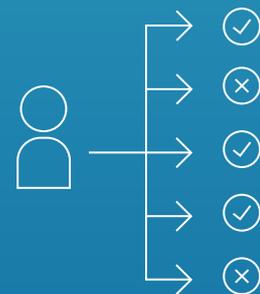
In first year, you could take subjects from the Earth Sciences subject set and the Geography subject set, as well as the Mathematics & Statistics subject set.

This will keep open majors in Climate & Weather, Environmental Science, Geography and Geology (plus others!)

FOR EXAMPLE...

You're looking for a career in engineering...

Mathematics & Statistics subject set + Engineering Systems subject set



In first year, you'll need to choose the Mathematics & Statistics subject set and the Engineering Systems subject set, which may also be required for entry into the Master of Engineering later on.

You'll make your other choices based on the streams you're interested in – for instance, Physical Sciences is required for Electrical Systems.

FOR EXAMPLE...

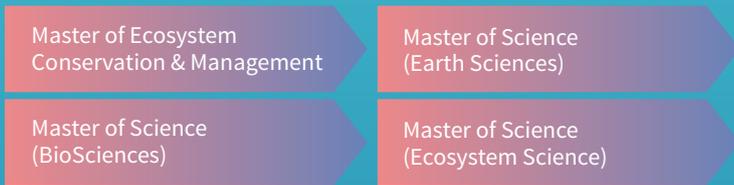
You want to work as a vet...

Biological Sciences subject set + Chemical Sciences subject set

- Agricultural Science
- Plant Science
- Zoology
- Marine Biology
- Genetics
- Plus others!

In first year, you should choose the Biological Sciences subject set and the Chemical Sciences subject set. If you didn't complete physics in Year 12 (or equivalent), you'll need to take a subject from the Physical Sciences set as well.

This keeps open majors in Agricultural Science, Plant Science, Zoology, Marine Biology and Genetics (plus others!).



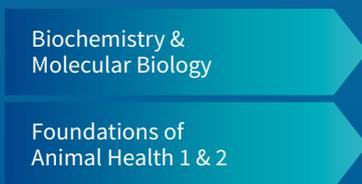
If you continue through to the Environmental Science major, you'll be on track to apply for graduate courses including the Master of Ecosystem Management & Conservation, the Master of Science (BioSciences), the Master of Science (Earth Sciences) and the Master of Science (Ecosystem Science).

The Master of Science degrees are research-based masters courses, which could put you on the path towards completing a PhD.



With this combination, you're also keeping open majors in Spatial Systems, Mechanical Systems, Mechatronics Systems and Civil Systems, plus Mathematics & Statistics, Physics and Mathematical Physics.

If you decide to pursue engineering as a career, you'll be able to enter the Master of Engineering in the same stream as your major and complete in two years, rather than three.



Doctor of Veterinary Medicine

- Biological Sciences subject
- Biochemistry & Molecular Biology

You are now eligible to take the required second year subjects that enable you to apply for the Veterinary Bioscience specialisation in the Animal Health & Disease major – Biochemistry & Molecular Biology and Foundations of Animal Health 1 and 2.

This specialisation is an accelerated pathway into the Doctor of Veterinary Medicine, which takes one year off the duration of the course, as your final year of the BSc is equivalent to your first year of the DVM.

Even if you don't take the accelerated pathway, you'll still have met the prerequisites for the DVM by completing a Biological Sciences subject and Biochemistry & Molecular Biology.



Faculty
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Call us

Local: 13 MELB (13 6352)
International:
+(61 3) 9035 5111



Visit us

Stop 1 (Parkville)
757 Swanston Street
The University of Melbourne
Victoria 3010 Australia

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Authorised by:

Faculty of Science, January 2020

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