2015 Bachelor of Science Academic Advice Guide
Message from the Dean

Dear Student

Welcome to the Bachelor of Science.

The BSc offers a comprehensive program spanning the sciences, technology and engineering systems. It is a challenging and rewarding course providing pathways to a variety of careers as well as opportunities for further graduate or research studies.

While the degree prepares graduates to advance directly to employment, you can also continue to professionally accredited graduate programs in a broad range of study areas, such as engineering or health sciences, or to graduate science programs with an industry orientation. Honours and Master of Science research training programs also provide pathways to research higher degrees such as the PhD.

SSC Student Advisers are here to help you plan your individual route through the degree, so please make use of the expert advice they offer.

The faculties involved in teaching the BSc have a proud tradition of teaching, research and community service. We are sure that you will enjoy working with us to be a part of and extend that tradition.

You are the future of science, technology and engineering and we encourage you to respond to the academic challenges that lie ahead of you and seize the opportunities the University provides.

Enjoy your time at the University of Melbourne. We wish you every success in your studies.

Professor Karen Day
Dean
Faculty of Science

Associate Professor Michelle Livett
Program Director
Bachelor of Science
As you begin your Bachelor of Science at the University, you become part of a community that will support you throughout your course. Teaching and support staff, as well as your fellow students, will all play a part in shaping your Melbourne Experience. This guide aims to help you make the most of your experience at university, and contains useful information about your course, subjects and the support and enrichment services available to you. We begin here with those that specifically support you in your course and subjects.

**SCIENCE STUDENT CENTRE (SSC)**

Grid Reference J19 on the Parkville Campus map 13MELB (13 6352)

studentcentre.science.unimelb.edu.au

The Science Student Centre (SSC) offers advice on your course and information about University services and facilities. If they are unable to assist you directly, SSC staff can direct you to the appropriate person or place. The following are just some of the enquiries they can assist you with:

- Enrolment queries
- Course or degree advice
- Advice on career and further study pathways
- If something goes wrong – on occasion, you might be distracted from your studies by factors such as illness or personal issues. If a problem is serious or persists over a long period, and is substantially affecting your academic performance, you should talk to a Student Adviser
- Ongoing advice and assistance to students facing difficulties, in order to assist them to study successfully.
- Special consideration – if factors such as illness and personal issues significantly impact on your study, you should consider applying for special consideration. Conditions apply.

**TEACHING DEPARTMENTS**

Teaching departments look after the design and provision of learning activities in your subjects, as well as their assessment. You should contact the relevant teaching department if you are seeking help with subject material, guidance about assessment tasks, extensions to assignments, or if you miss an assessable item during the semester.

The Learning Management System (LMS) subject site will inform you about how to make a subject enquiry. In most cases the subject coordinator or the First Year Learning Centre (if applicable) will be your first point of contact, or you may be encouraged to contact your lecturer or tutor directly.

**LMS – SUBJECTS ONLINE**

The Learning Management System (LMS) provides a secure and reliable web-based teaching and learning environment that allows you to access subject materials. Many of your first-year subjects will have subject schedules and outlines, lecture notes and recordings, tutorial questions and access to assessment available on the LMS. To log in to the LMS use your University email account name and password.

http://www.lms.unimelb.edu.au

**LEARNING CENTRES**

Many departments have special Learning Centre areas that provide academic resources for first-years and are great places to connect with like-minded students. You will be able to access support materials, ask questions of staff on duty and meet and collaborate with fellow students taking the same subject.

Find out where the Centres within these departments are located and take time out to visit them regularly. Do not wait until the end of semester – seek them early and see how they can assist your learning experience.

- Chemistry: www.chemistry.unimelb.edu.au/chemistry-learning-centre
- Physics: physics.unimelb.edu.au/Current-Students/First-Year-Students/FY-Learning-Centre

For up to date information relating to your enrolment:

- www.facebook.com/ssc.unimelb
- www.twitter.com/ssc_unimelb
With 37 majors to choose from, you will develop a broad understanding of science and technology, building on experiences in first and second year to gain a detailed, in-depth study of your Bachelor of Science (BSc) major. You will also develop skills to integrate your understanding of science within a wider context.

The degree provides a diverse range of pathways to a wide array of career and further study opportunities. Further study opportunities include professional graduate programs in Medicine; Dental Surgery; Optometry and other health sciences; Engineering; Land and Environment; Law; Teaching; Veterinary Medicine; and professionally-oriented science masters courses, as well as the Master of Science research training programs and Honours, which are pathways to Research Higher Degrees.

All study streams have been designed to develop your logical, analytical and innovative thinking. While problem-solving and numerical skills are the foundation of science, they are also highly sought after by employers. As a BSc graduate you will be well-equipped to embark on a wide range of careers.

**COURSE STRUCTURE**

The BSc course structure provides flexibility and choice, which in many cases allows specialisation options to be kept open until the end of the second year, at which time you will choose your major.

The major provides a coherent study experience and a depth of knowledge in a single science, technology or engineering systems discipline, or an interdisciplinary area.

In the third year of the degree there will be a capstone experience that integrates study within each major, focusing on how the knowledge and skills developed can be applied to research or a broader context.

For further course planning information: https://handbook.unimelb.edu.au/view/current/B-SCI

**EXAMPLE COURSE STRUCTURE**

<table>
<thead>
<tr>
<th>Year</th>
<th>First-year Science Subject</th>
<th>First-year Science Subject</th>
<th>First-year Science Subject</th>
<th>Breadth Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>First-year Science Subject</td>
<td>First-year Science Subject</td>
<td>Science Elective Subject</td>
<td>Breadth Subject</td>
</tr>
<tr>
<td>Year 2</td>
<td>Second-year Science Subject</td>
<td>Second-year Science Subject</td>
<td>Second-year Science Subject</td>
<td>Breadth Subject</td>
</tr>
<tr>
<td>Year 3</td>
<td>Major Subject</td>
<td>Major Subject</td>
<td>Third-year Science Subject</td>
<td>Breadth Subject</td>
</tr>
<tr>
<td></td>
<td>Major Subject</td>
<td>Major Subject</td>
<td>Third-year Science Subject</td>
<td>Breadth/Science Subject</td>
</tr>
</tbody>
</table>

**KEY/LEGEND**

- A major in the BSc is 50 points (four subjects) at Level 3 that you will study in third year, in a specific area of science, technology or engineering systems.
- Subjects leading to a major in third year.
- Complementary subjects – other science areas of study to complement your major.
- Additional science subjects.
- Breadth studies – at least 50 points of breadth studies are required and up to 75 points are permitted. Breadth studies are subjects outside the core disciplines of your degree. Up to 25 points of this shaded component may be science electives.

Undecided at first...

“I was undecided about my major throughout the whole of first year (and well into second year as well). I began with subjects I enjoyed in high school like chemistry, maths and computer science, before trying an engineering subject (ESD2) in semester two. I tried many different subjects for as long as I could (including civil engineering at one stage) before ultimately deciding on electrical systems towards the end of the year.”

Rhys
Welcome to the Bachelor of Science

Bachelor of Science
300 points

Science Subjects
225 points

Level 1
Min 62.5 points
Max 112.5 points

Level 2
Min 62.5 points

Level 3
Min 75 points

including
Science Major
50 points

Breadth
50 points

Level 1
Max 37.5 points

Breadth/Electives
25 points

■ 1 subject = 12.5 points.
■ Max 125 points at Level 1 across Science and Breadth.
■ Complete 50 points at one year level, before proceeding to next year level.
■ Diversity at Level 1: You must complete subjects from two different areas of study.

Max 37.5 points from: Biology, Chemistry, Earth Sciences, Engineering Systems, Geography and Environments, Information Technology, Mathematics and Statistics, Physics and Psychology.

Seeing the 'bigger picture'

“As a lot of the first-year subjects were prerequisites for the areas of science I was interested in (Biology and Chemistry), I mostly chose them based on this. However these were pretty broad subjects, which was nice as it showed you the ‘bigger picture’ for a lot of these areas of science. For example, the first-year biology subjects have many varied topics, such as cell biology, genetics, botany, ecology and evolution. I also chose a couple of subjects that I thought might be useful down the track (e.g. Data Analysis for stats; very useful if I were to consider research science) or subjects that I had a particular interest in.”

Claire
# First-year packages and Science majors

To assist you with choosing subjects and planning your course we’ve provided you with a list of first-year packages (page 6) and the 37 majors available in the BSc (page 7) so you can either plan based on your interests (first-year packages) or from your end goal (major).

<table>
<thead>
<tr>
<th>Science Category</th>
<th>Majors:</th>
<th>Key subjects:</th>
<th>Complementary subjects:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Behavioural Sciences</strong></td>
<td><strong>Psychology.</strong></td>
<td><strong>Mind, Brain and Behaviour 1 and 2.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Chemical Sciences</strong></td>
<td><strong>Biochemistry and Molecular Biology; Biotechnology; Chemistry; Food Science; Forest Science; Geology; Pathology; Pharmacology; Physics (including Chemical Physics specialisation).</strong></td>
<td><strong>Chemistry 1 and 2.</strong></td>
<td>One or more subject pairs from Physics, Mathematics, Biology, Earth Sciences. Biology is required for some majors.</td>
</tr>
<tr>
<td><strong>Earth Sciences</strong></td>
<td><strong>Climate and Weather; Geology.</strong></td>
<td><strong>Understanding Planet Earth with The Global Environment (preferred) or Natural Environments.</strong></td>
<td>Understanding Planet Earth and Calculus 2 are required and Linear Algebra is recommended for Atmosphere and Ocean Sciences[1].</td>
</tr>
<tr>
<td><strong>Environmental Sciences</strong></td>
<td><strong>Ecology and Evolutionary Biology; Environmental Science; Forest Science; Geography.</strong></td>
<td><strong>Biology of Cells and Organisms with Genetics and the Evolution of Life and/or Famine: The Geography of Scarcity with Natural Environments (required for Geography).</strong></td>
<td>Data Analysis 1 and/or Calculus 2 with Linear Algebra are required for Environmental Science[1].</td>
</tr>
<tr>
<td><strong>Engineering Systems</strong></td>
<td><strong>Bioengineering Systems; Chemical Systems; Civil Systems; Electrical Systems; Spatial Systems; Mechanical Systems.</strong></td>
<td><strong>Engineering Systems Design 1 and 2, Calculus 2 and Linear Algebra [1].</strong></td>
<td>One pair of Biology, Chemistry, Information Technology or Physics. Choice of complementary science subjects will depend on the Engineering Systems major(s) of interest.</td>
</tr>
<tr>
<td><strong>Information Technology</strong></td>
<td><strong>Computing and Software Systems; Spatial Systems; Informatics.</strong></td>
<td><strong>Foundations of Computing, Foundations of Algorithms (optional for Informatics).</strong></td>
<td>25 points of Mathematics (any) are required for Computing and Software Systems. Calculus 1 or 2 and Linear Algebra are required for Geomatics. [1]</td>
</tr>
<tr>
<td><strong>Life Sciences</strong></td>
<td><strong>Agricultural Science; Animal Health &amp; Disease; Animal Science and Management; Biochemistry and Molecular Biology; Biotechnology; Cell and Developmental Biology; Ecology and Evolutionary Biology; Food Science; Forest Science; Genetics; Human Structure and Function; Immunology; Marine Biology; Microbiology and Immunology; Neuroscience; Pathology; Pharmacology; Physiology; Plant Science; Zoology.</strong></td>
<td><strong>Biology of Cells and Organisms and Genetics and the Evolution of Life.</strong></td>
<td>Chemistry 1 and 2 are required for some majors. Note that subjects that develop quantitative reasoning should also be included, e.g. Mathematics, Data Analysis, Psychology, Physics.</td>
</tr>
<tr>
<td><strong>Mathematics and Statistics</strong></td>
<td><strong>Climate and Weather; Computing and Software Systems; Mathematical Physics; Mathematics and Statistics.</strong></td>
<td><strong>Calculus 2 and Linear Algebra [1].</strong></td>
<td>Understanding Planet Earth is required for Climate and Weather; Foundations of Computing, Foundations of Algorithms are required for Computing and Software Systems; Physics 1 and 2 (any) are required for Mathematical Physics. Note that science subjects with a laboratory component should be included.</td>
</tr>
<tr>
<td><strong>Physical Sciences</strong></td>
<td><strong>Climate and Weather; Mathematical Physics; Mathematics and Statistics; Physics (including Chemical Physics specialisation).</strong></td>
<td><strong>Physics 1 and 2 (any) and Calculus 2 and Linear Algebra [1].</strong></td>
<td>Chemistry 1 and 2 are required for Chemical Physics specialisation of the Physics major; Understanding Planet Earth is required for Climate and Weather.</td>
</tr>
</tbody>
</table>

[1] Qualified students may replace Calculus 2 and Linear Algebra with Accelerated Mathematics 1 and 2.
FIRST-YEAR PACKAGES

Several first-year packages have been designed to assist your course planning and provide flexibility when it comes to deciding on your major at a later stage of your degree. The first-year packages have been designed to cater for different backgrounds and interests.

Many majors require no more than 25 points of prerequisite study at first-year level.

Up to 75 points may be required for essential complementary study in a second discipline, or where multidisciplinary majors build on more than one discipline at first-year level. These larger packages provide pathways to major studies.

37 MAJORS AVAILABLE

<table>
<thead>
<tr>
<th>Science Major</th>
<th>First-Year Package(s) leading to this major</th>
<th>Additional Information on required and recommended subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Science</td>
<td>Life Sciences</td>
<td>Chemistry is recommended.</td>
</tr>
<tr>
<td>Animal Health and Disease</td>
<td>Chemical Sciences or Life Sciences</td>
<td>Biology and Chemistry are required. Physics is required. [2].</td>
</tr>
<tr>
<td>Animal Science and Management</td>
<td>Life Sciences</td>
<td>Chemistry and Statistics are recommended.</td>
</tr>
<tr>
<td>Climate and Weather</td>
<td>Earth Sciences or Physical Sciences or Mathematics &amp; Statistics</td>
<td>Earth Sciences and Mathematics are required. Physics is recommended.</td>
</tr>
<tr>
<td>Biochemistry and Molecular Biology</td>
<td>Chemical Sciences or Life Sciences</td>
<td>Chemistry is required; Biology is recommended.</td>
</tr>
<tr>
<td>Bioengineering Systems</td>
<td>Engineering Systems</td>
<td>Biology and Chemistry are required. [5]</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>Life Sciences</td>
<td>Chemistry is recommended.</td>
</tr>
<tr>
<td>Cell and Developmental Biology</td>
<td>Life Sciences</td>
<td>Chemistry is recommended.</td>
</tr>
<tr>
<td>Chemical Systems</td>
<td>Engineering Systems</td>
<td>Chemistry is required.</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Chemical Sciences</td>
<td>Physics and/or Mathematics are recommended.</td>
</tr>
<tr>
<td>Civil Systems</td>
<td>Engineering Systems</td>
<td>Physics is recommended.</td>
</tr>
<tr>
<td>Computing and Software Systems</td>
<td>Information Technology or Mathematics and Statistics</td>
<td>Mathematics is required. Foundations of Computing is required.</td>
</tr>
<tr>
<td>Ecology and Evolutionary Biology</td>
<td>Environmental Sciences or Life Sciences</td>
<td>Biology is required; Chemistry and Mathematics are recommended.</td>
</tr>
<tr>
<td>Electrical Systems</td>
<td>Engineering Systems</td>
<td>Physics is required [2], [3] and [4].</td>
</tr>
<tr>
<td>Environmental Science</td>
<td>Environmental Sciences</td>
<td>Mathematics is required and Chemistry is recommended.</td>
</tr>
<tr>
<td>Food Science</td>
<td>Chemical Sciences or Life Sciences</td>
<td>Biology and Chemistry are required.</td>
</tr>
<tr>
<td>Forest Science</td>
<td>Environmental Sciences or Life Sciences</td>
<td>Chemistry and/or Mathematics are recommended.</td>
</tr>
<tr>
<td>Genetics</td>
<td>Life Sciences</td>
<td>Chemistry is recommended.</td>
</tr>
<tr>
<td>Geography</td>
<td>Environmental Sciences</td>
<td>Geography and Environments are recommended.</td>
</tr>
<tr>
<td>Geology</td>
<td>Earth Sciences</td>
<td>Chemistry is recommended.</td>
</tr>
<tr>
<td>Human Structure and Function</td>
<td>Life Sciences</td>
<td></td>
</tr>
<tr>
<td>Informatics</td>
<td>Information Technology</td>
<td></td>
</tr>
<tr>
<td>Immunology</td>
<td>Life Sciences</td>
<td>Chemistry is recommended.</td>
</tr>
<tr>
<td>Marine Biology</td>
<td>Life Sciences</td>
<td>Chemistry is recommended.</td>
</tr>
<tr>
<td>Mathematical Physics</td>
<td>Mathematics and Statistics or Physical Sciences</td>
<td>Mathematics and Physics are required.</td>
</tr>
<tr>
<td>Mathematics and Statistics</td>
<td>Mathematics and Statistics or Physical Sciences</td>
<td>Mathematics is required.</td>
</tr>
<tr>
<td>Mechanical Systems</td>
<td>Engineering Systems</td>
<td>Physics is required [2] and [4].</td>
</tr>
<tr>
<td>Microbiology and Immunology</td>
<td>Life Sciences</td>
<td>Chemistry is recommended.</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>Life Sciences</td>
<td>Chemistry is recommended.</td>
</tr>
<tr>
<td>Pathology</td>
<td>Chemical Sciences or Life Sciences</td>
<td>Chemistry and Biology are required.</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>Chemical Sciences or Life Sciences</td>
<td>Chemistry and Biology are required.</td>
</tr>
<tr>
<td>Physics</td>
<td>Physical Sciences</td>
<td></td>
</tr>
<tr>
<td>Physiology</td>
<td>Life Sciences</td>
<td>Chemistry is recommended.</td>
</tr>
<tr>
<td>Plant Science</td>
<td>Life Sciences</td>
<td>Chemistry is recommended.</td>
</tr>
<tr>
<td>Psychology</td>
<td>Behavioural Sciences</td>
<td></td>
</tr>
<tr>
<td>Spatial Systems</td>
<td>Engineering Systems</td>
<td>Foundations of Computing is recommended.</td>
</tr>
<tr>
<td>Zoology</td>
<td>Life Sciences</td>
<td>Chemistry is recommended.</td>
</tr>
</tbody>
</table>

[2] Physics (Fundamentals or any Physics 1 or Physics 2) is a prerequisite for second-year subjects in this major for students who have not completed Physics at Year 12 level.
[3] Physics 2: Physical Science and Technology is a prerequisite for third-year level subjects in this major.
[4] Physics 1 (any) and Physics 2 (Advanced or Physical Science and Technology) are required for entry to the relevant stream of the Master of Engineering.
This section provides information about the subject areas and some of the specific science subjects available to students in first year. Use this section to assist with choosing your subjects; if you’re still unsure, use the departmental websites for further information.

The first year of the Bachelor of Science aims to provide a framework that helps students choose packages of complementary subjects while providing diverse study opportunities.

You should choose subjects that complement one another and that provide the basis for multiple pathways through the degree.

Subject pairs have been designed to provide a foundation to at least one major and/or enhance the foundation of other majors.

YOUR FIRST-YEAR PACKAGES EXPLAINED

Watch these videos for simple explanations of your first-year packages and breadth subjects.

studentcentre.science.unimelb.edu.au

CONTENTS

<table>
<thead>
<tr>
<th>Subject</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>9</td>
</tr>
<tr>
<td>Chemistry</td>
<td>9</td>
</tr>
<tr>
<td>Earth Sciences</td>
<td>10</td>
</tr>
<tr>
<td>Engineering Systems Design</td>
<td>10</td>
</tr>
<tr>
<td>Geography &amp; Environments</td>
<td>11</td>
</tr>
<tr>
<td>Information Technology</td>
<td>12</td>
</tr>
<tr>
<td>Life, Earth and Universe</td>
<td>12</td>
</tr>
<tr>
<td>Mathematics and Statistics</td>
<td>13</td>
</tr>
<tr>
<td>Physics</td>
<td>15</td>
</tr>
<tr>
<td>Psychology</td>
<td>16</td>
</tr>
</tbody>
</table>
Biology subjects introduce students to modern concepts in the biological sciences. The subjects look at the principles underlying the diversity of life as well as emphasising the principles unifying living things. Together, the subjects BIOL10004 and BIOL10005 prepare students for further study in the biological and biomedical sciences. BIOL10001 complements the other biology subjects while not being a prerequisite for majors in the biological sciences.

GENE10001 provides enough background for a student to critically evaluate the way Genetics is presented in all forms of the media. It is only available to students who have not completed BIOL10005 or BIOL10003.

- BIOL10001: Biology of Australian Flora and Fauna
- BIOL10004: Biology of Cells and Organisms
- BIOL10005: Genetics and the Evolution of Life
- GENE10001: Genetics in the Media

Note: There are no prerequisites for first-year level Biology.

Chemistry is often called the central science because, as with mathematics and statistics, the knowledge gained from its study is essential for understanding and participating in nearly all branches of science and technology that support our modern society.

First-year chemistry covers a broad range of topics designed to allow you to either pursue chemistry subjects in later years or to spread your interests across to other disciplines. The School of Chemistry has world-class teaching laboratories and is strongly supported by computer-aided learning (ChemCAL).

- CHEM10003: Chemistry 1
- CHEM10004: Chemistry 2
- CHEM10007: Fundamentals of Chemistry

A successful completion of Chemistry 2 will allow you to enrol in Level 2 chemistry subjects and any Level 2 subjects in other disciplines that require Level 1 chemistry as a prerequisite.

Students who have not successfully completed year 12 (or equivalent) Chemistry will need to enrol in Fundamentals of Chemistry CHEM10007.

How Do You Know Which Chemistry Subjects to Take?

Note: If you fall into the following category, you should contact the Director of First Year Studies, Dr Stephen Best (phone +61 3 8344 6505, or email first-year-director@chemistry.unimelb.edu.au) for advice:

- Students who completed VCE Chemistry 3/4 or equivalent but wish to enrol in Fundamentals of Chemistry
- Students who did not complete VCE Chemistry 3/4 or equivalent in their final year of schooling, but wish to enrol in Chemistry 1 on the basis of a very high level of achievement in VCE Physics and Mathematics or equivalent.

International Baccalaureate students

- Students who completed HL or SL Chemistry should enrol in Chemistry 1 followed by Chemistry 2 (Chemistry 2 requires the successful completion of Chemistry 1)
- Students who did not complete Chemistry should enrol in Fundamentals of Chemistry in Semester 1.

GCE A level students or Trinity College Foundation Studies students or South Australian Matriculation (SAM) students

- Students who completed Chemistry should enrol in Chemistry 1 followed by Chemistry 2 (Chemistry 2 requires the successful completion of Chemistry 1)
- Students who did not complete Chemistry should enrol in Fundamentals of Chemistry in Semester 1.
Level 4, Earth Sciences, McCoy building (200) 
(Corner of Swanston and Elgin Streets)

One or both of the Level 1 Earth Sciences subjects: ERTH10001 and ERTH10002 form the starting point of an Earth Sciences major (Geology or Climate & Weather) and can also be included with any other package.

Are you interested in understanding the evolution of our planet? Did you know that all major processes operating in the lithosphere, hydrosphere, biosphere and atmosphere are intertwined? The School of Earth Sciences offers two majors that will fulfill your interest: Geology, and Climate and Weather.

The Geology major relates to the solid earth, in particular the rocks and their constituent minerals and fossils. The study and interpretation of the geological record is of paramount importance in environmental studies and the search for natural resources like gold, coal, oil, ground-water and rock material used for construction work. It is also fundamental to the use of renewable resources such as geothermal energy.

The Climate and Weather major relates to the atmosphere, the oceans, their interaction and the influence of the earth’s surface on their motion. Subjects within the major explore the basic mechanisms that control weather and climate, and the potential impact of human activities on weather and climate patterns into the future.

ERTH10001: The Global Environment provides an overview of the processes controlling the formation and evolution of our global environment. Students gain a holistic view of the global environment, encompassing the solid and fluid Earth and its formation, evolution, and modern structure. Students will be familiar with: the materials that comprise the Earth, atmosphere and oceans; the complex interplays between these three media; the modes of formation, the underlying processes that drive the evolution of the solid Earth and landscape; and changes in the Earth’s climate on modern and geological timescales. The Global Environment provides the foundation for further study in Geology and/or Climate and Weather.

ERTH10002: Understanding Planet Earth is designed for students particularly interested in geology. This subject will allow students to gain a deeper understanding of the processes governing the geological evolution of the Earth. This will be achieved through a combination of class-based learning and a field trip related to the geology of Victoria.

ENGR10004: Engineering Systems Design 1 introduces students to the world of engineering through a mix of design projects, interactive workshops and lectures. This subject centres on the engineering method, the approach to problem solving and engineering design that makes engineers unique.

ENGR10003: Engineering Systems Design 2 builds directly on Engineering Systems Design 1 by further developing the students’ understanding of the engineering method and the importance of engineering in society. Engineering Systems Design 2 focuses on inter-relationships in engineering systems drawing on important examples from lightweight structures and digital electronic circuits. The importance of modelling change through dynamic models is also emphasized. Together with Engineering Systems Design 1, this subject will prepare students for an exciting and rigorous engineering education that will allow them to serve the needs of an increasingly complex society.

ENGR10004: Engineering Systems Design 1
ENGR10003: Engineering Systems Design 2

Field Trips

The School of Earth Sciences has many subjects that include one or more field trips offering a total of 14 field trips. Field trips help develop important skills including communication, problem solving and working in teams and allow students to gain useful practical skills that will be highly valued by potential employers. The field trips explore both coastal and inland Victoria and are not only academically interesting but lots of fun.
Famine: The Geography of Scarcity

http://science.unimelb.edu.au/

13 MELB (13 6352)

Faculty of Science.

This subject explains the physical and social drivers of famines and related crises in social-ecological systems, including the collapse of civilizations and violent conflicts seemingly triggered by scarcity of food, water, and arable land. It presents interpretations that explain famines and crises of scarcity, and tests these with empirical evidence and case studies. In this way the subject introduces key issues, concepts, and theories central to geography, development, and environmental sciences. The subject will appeal to students interested in problems of global significance and in problems that require the application of both natural and social research. Students who complete the subject will become familiar with major themes and research of the causes, extent, and possible solutions to famine, scarcity, and food security.

GEOG10001: Famine: The Geography of Scarcity

Mapping Environments

www.ie.unimelb.edu.au

+61 3 8344 9854

Department of Infrastructure Engineering
Level 4/ Engineering Block D Room 406

In this subject students will learn how information is used to support decision making in urban and rural environments. This includes methods of data collection, mapping, information communication through visualisation, and decision-support systems. This will be presented by studying the historical development of the supporting technologies, the social context of their use, and their current importance in the age of information. The practical sessions will give hands-on experience with a range of measurement, geographic information, image analysis and virtual reality technologies within a problem-solving context.

ENVS10006: Mapping Environments

Natural Environments

http://fvas.unimelb.edu.au/

13 MELB (13 6352)

Faculty of Veterinary and Agricultural Sciences

This subject introduces students to natural environments, and the elements and systems that shape the natural world. A critical understanding of these elements and systems is fundamental, not only to the sustainable management of natural environments, but also to nearly all aspects of human endeavour therein: including biodiversity and recreation management, primary production (agriculture and forestry), urban and regional land-use planning, environmental design (architecture and engineering), and; local through to global environmental policy. In this subject, the student draws upon case studies and concepts from a broad range of disciplines to explore key components and processes of natural environments, and learns practical skills in landscape assessment for sustainable management and design. Major themes explored include plate tectonics, rocks and minerals; landscape processes and soil formation; weather, climate and climate change; microclimate; the water cycle and catchment hydrology; and landscape ecology and the distribution, properties and functioning of different ecosystems. Practical skills in landscape assessment and interpretation are emphasised, as well as an appreciation of the effect of scale and temporal change in the examination of natural environments.

ENVS10001: Natural Environments

First-year Science subjects

Good advice from 2nd and 3rd year BSc students

“Make the most of your first year, it’s one of the best times in your life! I highly recommend getting involved in a few clubs and going on at least one orientation camp. Forming some good, solid friendships in first year is a really great way to start university; it’s going to help a lot! Concurrent diplomas are really awesome. If you’re interested in IT, languages, maths etc. it’s a great way to keep your options open, as well as gain an extra qualification at the end of your degree.”

Rhys

“First year is definitely the time to explore and try new things. There is always something happening on campus, get involved and participate. Be adventurous, challenge yourself, and make the most of your time here! I had no clue what to expect from my first year at university. I walked into first year with the impression that I was cut off from all support and I was on my own, and I was so wrong. Yes, you are required to be independent at university, but I learned that the university offered many free services such as Academic Skills that were available to help.”

Daphane

“Join clubs that interest you and make friends in classes. The best way to learn is by collaboration with other students and it also means classes and exam period is much more fun! ”

Claire
A multi-disciplinary approach is required to understand the most profound questions about life on Earth, and the possibility of life elsewhere in the universe. This subject will explore the key ideas from the major scientific disciplines to understand the nature of life, the formation of the Earth and the structure of the universe. The development of life on the planet Earth is dependent on evolution of the surface of the planet, and in turn has affected the surface of the planet. Armed with an understanding of how life might have evolved on Earth, the subject will then explore the possibilities for life elsewhere in the solar system and beyond.

• MULT10011: Introduction to Life, Earth and Universe

How did you choose your first-year Science subjects?

“I entered the University of Melbourne with the aim of majoring in Climate and Weather, or Physics. These majors reflected what I had enjoyed in high school and I wanted to learn more about those areas. As I knew areas of possible majors I worked backwards from the 3rd year subjects to make sure I took all prerequisite subjects. By the middle of the year I had moved away from Physics and pursued my newfound love of Earth Sciences, including Geology. My semester 2 subjects altered slightly as I moved in a new direction.”

Amber
How do I know which Mathematics and Statistics subjects to take?

In choosing your first-year Mathematics and Statistics subjects you should bear in mind your own mathematical background, the options that you wish to keep open for later year studies and possible career paths that you may wish to follow. As a first step, we suggest that you be aware that the following sample combinations of subjects are very popular. Many variations on these standard combinations of subjects are possible, and can be explored with a Student Adviser.

Please note that the BSc course requirements specify that you cannot enrol in more than three Level 1 Mathematics and Statistics subjects (37.5 points) within the course.

A good combination for students who, after first year, wish to concentrate on biological or other experimental sciences is:

**Semester One**
- MAST10005: Calculus 1

**Semester Two**
- MAST10010: Data Analysis 1

Students who wish to study mathematics, statistics or physics past first-year level should take calculus and linear algebra (some students will commence their mathematical studies with Calculus 1, depending on their prior mathematical studies).

- MAST10005: Calculus 1 (semester 1, repeated semester 2)
- MAST10006: Calculus 2 (semester 2, repeated semester 1)
- MAST10007: Linear Algebra (semester 2, repeated summer and semester 1)

Students with a strong background in Mathematics should consider enrolling in both Accelerated Mathematics 1 and Accelerated Mathematics 2 instead of both Linear Algebra and Calculus 2 (subject to eligibility).

**Semester One**
- MAST10008: Accelerated Mathematics 1

**Semester Two**
- MAST10009: Accelerated Mathematics 2

SIR LAWRENCE BRAGG (1890-1971)

At 25 years old, Australian-born physicist Sir Lawrence Bragg is the youngest person to ever win a Nobel Prize in 1915, for his work on x-ray crystallography.

"The important thing in science is not so much to obtain new facts as to discover new ways of thinking about them."

Sir Lawrence Bragg (1890-1971)
CHOOSING YOUR FIRST-YEAR MATHEMATICS SUBJECTS

Your mathematics options depend on your school qualification and the particular subjects and options that you studied. Below we list mathematics options for some of the most common school qualifications. If you completed other qualifications or other mathematics subjects/options please seek advice from the Department of Mathematics and Statistics about what subjects are suitable for you.

<table>
<thead>
<tr>
<th>Secondary Education Certificate/Program</th>
<th>Subject Studied</th>
<th>Level Achieved</th>
<th>Maths Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCE</td>
<td>Specialist Mathematics 3/4 or equivalent</td>
<td>≥ 38</td>
<td>I</td>
</tr>
<tr>
<td>VCE</td>
<td>Specialist Mathematics 3/4 or equivalent</td>
<td>30-37</td>
<td>II</td>
</tr>
<tr>
<td>VCE</td>
<td>Specialist Mathematics 3/4 or equivalent</td>
<td>29</td>
<td>III</td>
</tr>
<tr>
<td>VCE</td>
<td>Specialist Mathematics 3/4 or equivalent</td>
<td>≤ 28</td>
<td>IV</td>
</tr>
<tr>
<td>VCE</td>
<td>Mathematical Methods 3/4 only or equivalent</td>
<td>≥ 25</td>
<td>IV</td>
</tr>
<tr>
<td>International Baccalaureate</td>
<td>HL Mathematics</td>
<td>≥ 6</td>
<td>I</td>
</tr>
<tr>
<td>International Baccalaurete</td>
<td>HL Mathematics</td>
<td>4, 5</td>
<td>II</td>
</tr>
<tr>
<td>International Baccalaurete</td>
<td>SL Mathematics</td>
<td>≥ 4</td>
<td>IV</td>
</tr>
<tr>
<td>GCE A-Level CIE (Cambridge)</td>
<td>P1, P3 + 2 options</td>
<td>A, A+</td>
<td>I</td>
</tr>
<tr>
<td>GCE A-Level CIE (Cambridge)</td>
<td>P1, P3 + 2 options</td>
<td>C-B+</td>
<td>II</td>
</tr>
<tr>
<td>GCE A-Level Edexcel</td>
<td>C1, C2, C3, C4 + M1, S1 options</td>
<td>≥ C</td>
<td>II</td>
</tr>
<tr>
<td>GCE A-Level Edexcel</td>
<td>C1, C2, C3, C4 + S1, S2 options</td>
<td>≥ C</td>
<td>IV</td>
</tr>
</tbody>
</table>

**Note:** GCE A-Level students who have completed other A-Levels or other combinations of mathematics subjects should speak with a course adviser in the Maths/Stats Learning Centre in regards to selecting appropriate subjects.

**Trinity College Foundation Studies**

- Mathematics 2* and Mathematics 1
  - * ≥ 90
  - I
- Mathematics 2* and Mathematics 1
  - *50-89
  - II
- Mathematics 1
  - ≥50
  - IV

Any student who does not satisfy the criterion for entry into Accelerated Mathematics 1, but wishes to enrol in that subject, may sit a 90 minute Advanced Placement Test, and if successful, enrol in Accelerated Mathematics 1. Contact the Department of Mathematics and Statistics for the time and venue of the test.

Students who have taken a Mathematics Extension/Enhancement Studies subject in Year 12 (e.g. UMEP Mathematics or Monash Enhancement) should seek advice about their subject choices from the Department of Mathematics and Statistics UMEP Coordinator, Ms Liz Bailey or Dr Anthony Morphett.

**FIRST-YEAR MATHEMATICS AND STATISTICS**

<table>
<thead>
<tr>
<th>Maths Options</th>
<th>Eligible</th>
<th>Ineligible</th>
</tr>
</thead>
</table>
| I             | MAST10006 Calculus 2  
MAST10007 Linear Algebra  
MAST10008 Accelerated Mathematics 1  
MAST10009 Accelerated Mathematics 2  
MAST10010 Data Analysis 1 | MAST10005 Calculus 1 |
| II            | MAST10006 Calculus 2  
MAST10007 Linear Algebra  
MAST10010 Data Analysis 1 | MAST10006 Calculus 1  
MAST10008 Accelerated Mathematics 1  
MAST10009 Accelerated Mathematics 2 |
| III           | MAST10006 Calculus 1  
MAST10006 Calculus 2  
MAST10007 Linear Algebra  
MAST10010 Data Analysis 1 | MAST10008 Accelerated Mathematics 1  
MAST10009 Accelerated Mathematics 2 |
| IV            | MAST10005 Calculus 1  
MAST10010 Data Analysis 1 | MAST10006 Calculus 2*  
MAST10007 Linear Algebra*  
MAST10008 Accelerated Mathematics 1  
MAST10009 Accelerated Mathematics 2 |

*eligible to study after successful completion of MAST10005 Calculus 1
PHYSICS

www.physics.unimelb.edu.au
+61 3 8344 7670
dfys@physics.unimelb.edu.au

Ground Floor, Physics building (192)

In physics you will study nature at its most fundamental level, helping you understand many familiar and interesting questions about how the world works. You will learn about the structure and interactions of matter on all scales, from particles inside the atomic nucleus, through to human-sized objects, and up to the forces that give rise to the structure of the whole universe.

An understanding of physics also underpins many other areas of study, including engineering, chemistry, biological and environmental sciences.

The School of Physics offers different pathways through Level 1 Physics subjects to cater for students with different needs and futures in mind.

Semester One

- PHYC10001: Physics 1: Advanced
- PHYC10003: Physics 1
- PHYC10005: Physics 1: Fundamentals

Semester Two

- PHYC10002: Physics 2: Advanced
- PHYC10004: Physics 2: Physical
Science & Technology
- PHYC10006: Physics 2: Life Sciences & Environment

We are No. 1 in Australia

“Physics and Astronomy at the University of Melbourne is No.1 in Australia, No.3 in Asia and No.24 in the world”*. – (QS World University Rankings 2013)

HOW DO I KNOW WHICH PHYSICS SUBJECTS TO TAKE?

Semester One

Choose the physics subject that suits your interest in Physics and the strength of your physics and mathematics background.

- Physics 1: Advanced
  For students seeking a deep and more challenging introduction to physics, who have results of at least 35 in both VCE Physics 3/4 and VCE Specialist Mathematics 3/4, or equivalent. Students with this preparation are encouraged to undertake the advanced Physics sequence.

- Physics 1: Fundamentals
  An introductory subject that does not assume a previous physics background. Students with a score of 30 or more in VCE Physics 3/4 will not normally be permitted to enrol in Physics 1: Fundamentals

Semester Two

Choose the physics subject that suits how you want to use your Physics and the strength of your physics and mathematics background.

- Physics 1
  For students who are considering taking physics beyond first year or as a complement to their other science or engineering studies, who have completed VCE Physics 3/4, or equivalent normally. For students who have not completed VCE Specialist Mathematics 3/4, or equivalent, a concurrent enrolment in Calculus 1 is recommended but not required.

- Physics 1: Fundamentals
  An introductory subject that does not assume a previous physics background. Students with a score of 30 or more in VCE Physics 3/4 will not normally be permitted to enrol in Physics 1: Fundamentals

WHICH MATHEMATICS SUBJECTS SHOULD YOU TAKE?

Students considering continuing physics beyond first year should take Level 1 maths.

For additional information refer to the Mathematics and Statistics section of this guide.

RECOMMENDED MINIMUM REQUIREMENTS FOR ENROLMENT IN THESE SUBJECTS

<table>
<thead>
<tr>
<th></th>
<th>VCE 3/4</th>
<th>International Baccalaureate HL/SL</th>
<th>Trinity College Foundation Studies</th>
<th>GCE A Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics 1: Advanced</td>
<td>35 Physics, 35 Specialist Mathematics</td>
<td>5HL/7SL, Mathematics: 4HL/6SL</td>
<td>85 Physics, 85 Mathematics</td>
<td>A Physics, B Mathematics</td>
</tr>
<tr>
<td>Physics 1</td>
<td>Physics**</td>
<td>Physics**</td>
<td>Physics**</td>
<td>Physics**</td>
</tr>
<tr>
<td>Physics 1: Fundamentals</td>
<td>None*</td>
<td>None*</td>
<td>None*</td>
<td>None*</td>
</tr>
</tbody>
</table>

*High Achieving students who have undertaken Physics at Year 12 level are not eligible to enrol in Fundamentals

**Students who have not completed VCE Specialist Mathematics 3/4 or equivalent are recommended to enrol in Calculus 1.
Psychology is the study of the human mind, brain and behaviour and it is a major discipline underpinning the behavioural and cognitive neurosciences. Level 1 Psychology will look at every stage of human behaviour from Behavioural Neuroscience and cognitive processes through to the study of Developmental and Social Psychology and Personality and Clinical Psychology. You will also learn the basic techniques of Quantitative Methodology and Analysis essential to all research in Psychology.

There are no VCE prerequisites to study Psychology in first year. Whether Psychology is taken as an Australian Psychology Accreditation Council (APAC) accredited major or as a single subject, students will find that the discipline is complementary to many other subjects. Even if you do not ultimately choose a career in Psychology, the discipline is still fascinating and useful in its own right because the more you understand yourself and those around you, the greater your capacity for empathy with your environment, both social and physical.

- **PSYC10003: Mind, Brain and Behaviour 1**
- **PSYC10004: Mind, Brain and Behaviour 2**

“...seriously considering taking Chemistry. It opens up so many more subject choices and major options for you. Also, if you find your marks aren’t too great in your first semester, or even your second, don’t stress. I found that my marks went up as I became more comfortable with uni life.”

**Steph**
One of the most exciting aspects of Melbourne degrees, breadth studies enables you to choose up to 25 per cent of your subjects from areas outside the core disciplines of your degree. By studying subjects beyond your core disciplines, you will develop different skills, expand your knowledge, challenge your perceptions and learn complementary ways of thinking about issues and problems.

As part of the Melbourne curriculum, students in an undergraduate degree specialise by completing a major in a specific discipline (depth) and gain knowledge across disciplines from outside their core program (breadth).

**CHOOSING BREATH IN THE BACHELOR OF SCIENCE**

Breadth studies will enable you to tap into other bodies of knowledge, methods of enquiry, personal and professional skills. There are many ways to think about choosing subjects for the breadth component of your degree. For example, you could choose subjects in study areas that:

- **Provide you with the skills and understanding to apply your science knowledge and contribute to science-oriented professions, the business world, education and everyday life. For example: bioethics, economics, communication, information systems, education, law, and sociology**

- **Develop your understanding of what is distinctive about science as a way of interpreting our world, and/or how it compares to other creative and evidence-based disciplines. For example: history and philosophy of science, art history, architecture, linguistics**

- **You have always wanted to pursue – you now have that opportunity at university**

**BREADTH RULES FOR THE BACHELOR OF SCIENCE**

- You can take up to 75 points (six subjects) of breadth study
- You must complete a minimum of 50 points (four subjects) of breadth study including at least 12.5 points at Level 2 or Level 3
- You may complete a maximum of 37.5 points (three subjects) of breadth at Level 1

**BREADTH TRACKS**

A breadth track is a set of three or more subjects that progressively develops knowledge and skills relevant to a domain, theme, topic or issue. You are strongly encouraged to undertake at least one breadth track as part of your breadth studies.

For details about breadth tracks please go to:

breath.unimelb.edu.au

**SUBJECTS AVAILABLE AS BREADTH STUDIES FOR BACHELOR OF SCIENCE STUDENTS**

handbook.unimelb.edu.au/faces/htdocs/user/breadth/BreadthSearch.jsp

Learn more about breadth study and your BSc breadth options:

breath.unimelb.edu.au/breadth/info/Science.html

---

**Appreciate the different perspective**

“Learning German through my breadth subjects was useful as it led me to enrol in a Diploma of Languages. Some of my friends have really appreciated the different perspective their breadth subject choices gave them. One friend even considered changing his course completely because of a particularly inspiring breadth subject.”

Claire
Graduates of the Bachelor of Science (BSc) can choose to pursue further studies in the sciences and technology, or other areas of interest. As a BSc graduate, you can continue further study in:

- A range of Honours and Masters programs, which in turn can lead to research higher degrees like the PhD
- Other professional graduate programs such as Health Sciences (including Medicine, Nursing Science, Optometry and Physiotherapy), Veterinary Science, Engineering, Management, Law, Social Work, Teaching and Urban Planning

For further information visit the individual Graduate Schools’ websites:

- Engineering: [www.eng.unimelb.edu.au/study/graduate](http://www.eng.unimelb.edu.au/study/graduate)
- Medicine, Dentistry and Health Sciences: [research.mdhs.unimelb.edu.au/prospective-RHDs](http://research.mdhs.unimelb.edu.au/prospective-RHDs)
- Science: [graduate.science.unimelb.edu.au](http://graduate.science.unimelb.edu.au)
- Faculty of Veterinary and Agricultural Science: [http://fvas.unimelb.edu.au/](http://fvas.unimelb.edu.au/)

**SCIENCE, TECHNOLOGY AND ENGINEERING RESEARCH PROGRAMS**

After completion of an Honours year, or a research training masters degree, students may pursue a research higher degree in one of the exciting research areas offered by faculties contributing to the BSc.

Research programs include the Master of Philosophy (MPhil) and the Doctor of Philosophy (PhD).
**SCIENCE, TECHNOLOGY AND ENGINEERING COURSEWORK PROGRAMS:**

<table>
<thead>
<tr>
<th>Graduate course</th>
<th>Other information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honours</td>
<td>For details visit the Science Student Centre <a href="http://bsc.unimelb.edu.au/bachelor-science-honours">bsc.unimelb.edu.au/bachelor-science-honours</a></td>
</tr>
<tr>
<td>Master of Biotechnology</td>
<td>For details visit the Graduate School of Science <a href="http://graduate.science.unimelb.edu.au">graduate.science.unimelb.edu.au</a></td>
</tr>
<tr>
<td>Master of Forest Ecosystem Science</td>
<td>For details visit the Graduate School of Science <a href="http://graduate.science.unimelb.edu.au">graduate.science.unimelb.edu.au</a></td>
</tr>
<tr>
<td>Master of Urban Horticulture</td>
<td>For details visit the Graduate School of Science <a href="http://graduate.science.unimelb.edu.au">graduate.science.unimelb.edu.au</a></td>
</tr>
<tr>
<td>Master of Engineering</td>
<td>For details visit the Melbourne School of Engineering <a href="http://www.eng.unimelb.edu.au/study/graduate">www.eng.unimelb.edu.au/study/graduate</a></td>
</tr>
<tr>
<td>Master of Information Systems</td>
<td>For details visit the Melbourne School of Information <a href="http://msi.unimelb.edu.au/study/graduate">msi.unimelb.edu.au/study/graduate</a></td>
</tr>
<tr>
<td>Master of Science</td>
<td>For details visit the Graduate School of Science <a href="http://graduate.science.unimelb.edu.au">graduate.science.unimelb.edu.au</a></td>
</tr>
</tbody>
</table>

**VETERINARY SCIENCE:**

<table>
<thead>
<tr>
<th>Graduate course</th>
<th>First-year required subjects/Other information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor of Veterinary Medicine (Three years)</td>
<td>First-year Biology and Chemistry. First-year Physics is required for students who have not completed VCE Physics or equivalent. Students complete a major in Animal Health and Disease with the Veterinary Bioscience specialisation. Selection into this specialisation occurs at the end of the second year of the Bachelor of Science. <a href="http://fvas.unimelb.edu.au/">http://fvas.unimelb.edu.au/</a></td>
</tr>
<tr>
<td>Doctor of Veterinary Medicine (Four years)</td>
<td>First-year Biology and Chemistry. Students complete a biological science major for entry to the Doctor of Veterinary Medicine after completion of the Bachelor of Science. <a href="http://fvas.unimelb.edu.au/">http://fvas.unimelb.edu.au/</a></td>
</tr>
</tbody>
</table>

**HEALTH SCIENCES:**

<table>
<thead>
<tr>
<th>Graduate course</th>
<th>First-year required subjects/Other information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Nursing Science</td>
<td>First-year Biology <a href="http://www.nursing.unimelb.edu.au">www.nursing.unimelb.edu.au</a></td>
</tr>
<tr>
<td>Doctor of Dental Surgery</td>
<td>First-year Biology and Chemistry <a href="http://sc.mdhs.unimelb.edu.au/prerequisites">sc.mdhs.unimelb.edu.au/prerequisites</a></td>
</tr>
<tr>
<td>Doctor of Medicine</td>
<td>First-year Biology and Chemistry <a href="http://sc.mdhs.unimelb.edu.au/prerequisites">sc.mdhs.unimelb.edu.au/prerequisites</a></td>
</tr>
<tr>
<td>Doctor of Physiotherapy</td>
<td>First-year Biology <a href="http://sc.mdhs.unimelb.edu.au/prerequisites">sc.mdhs.unimelb.edu.au/prerequisites</a></td>
</tr>
<tr>
<td>Doctor of Optometry</td>
<td>First-year Biology <a href="http://graduate.science.unimelb.edu.au">graduate.science.unimelb.edu.au</a></td>
</tr>
</tbody>
</table>

**OTHER GRADUATE COURSES:**

- Master of Architecture
- Master of Construction Management
- Juris Doctor (Law)
- Master of Management
- Master of Landscape Architecture
- Master of Property
- Master of Teaching
- Master of Urban Planning
- Master of Actuarial Science
- Master of Economics
- Master of Journalism

The entry requirements for each of these degrees can be met in the BSc.

For further information on graduate courses and pathways, please visit: [coursesearch.unimelb.edu.au/grad](http://coursesearch.unimelb.edu.au/grad)
Try a subject not offered at school…

“I picked up earth sciences in semester 2 (in place of breadth for the semester) because I knew that I liked the natural environment and enjoy visiting national parks and thought that I would try a subject that wasn’t specifically offered at school.”

“Introduce yourself to new people! You’re not the only one uncertain about who you’re going to sit with during lectures and eat lunch with! Whether’s it’s a lecture, a tute or pracs say hello and you’ll start forming friendships with many of the people you meet.”

Owen

Subjects that relate to me and my major!

“For me, first year was about balance – you needed to keep your options open whilst also choosing subjects within your interests. It helped to use the handbook, find the subjects you were interested in and then check the prerequisites so that you could enrol in them in first year. Many disciplines offer introductory sessions during the o-week: attend as many as you can. They give you an idea what studying that discipline is like and you might just find the perfect elective/breadth subject for you. That’s how I decided to take philosophy as a breadth subject - loved it.”

Jiugao

Maintain a balance between study and life...

“I joined some clubs, both cultural and ones related to my interests. That helped with making friends and settling in. Outside of university, I juggled work and volunteering with staying fit. It’s easy to get carried away with keeping on top of study and doing well. It’s crucial for you to maintain a balance between study and life from day one.”

Kaneeka
ONLINE RESOURCES
The University has many useful resources designed to assist with all aspects of your studies. The first website you will need to become familiar with is THE HANDBOOK: handbook.unimelb.edu.au
The handbook is an invaluable tool which you will refer to throughout the entirety of your course. It lists all of the subjects you can choose within your course, as well as explaining what prerequisites are required, how many points each subject is worth, and most importantly provides a detailed description of what the subject is about and what assessments are required.
Over time you will become more confident with using the handbook - however, if you have any questions about how to use the website please visit your Science Student Centre for assistance.

MY.UNIMELB.EDU.AU
This is your student portal - a central personalised web-page from which you can access all the information you need to manage your enrolment.
You will use my.unimelb.edu.au almost daily whilst studying in this course so make sure you become familiar with how it works. Contact 13Melb if you experience issues with the content or need help navigating the site.

FACEBOOK
We use Facebook as a communication tool for students to get up-to-the-minute advice and alerts on what is happening within the Faculty of Science.
Head over to the site and LIKE the page so you receive up to date information!
www.facebook.com/ssc.unimelb
Some of the main functions you can use Facebook for:
■ Asking a direct question to our Science Student Centre staff
■ Timetable updates and advice about enrolment deadlines
■ Networking with other Science students
■ Event notifications are posted relating to careers, internships and guest lectures

ask.unimelb
Got a question but you’re not sure which webpage to search or service centre to call? Then head to ask.unimelb
The tour allowed me to gain a better idea of what research is currently being conducted. The researchers we spoke to were very knowledgeable and listening to their areas of research was of particular use to me in terms of determining what I plan to do with myself in the future. I am still trying to determine what to do as a career, and through this tour I am seriously considering going into a career of research, potentially coupled with some clinical work.

Once you’ve chosen your subjects, you might consider how you can enhance the value of your science degree to improve your career prospects.

STUDENT CONNECT
Student Connect is designed to assist your transition to, through and beyond university. A Student Development Adviser will work with you to help you make the most out of your University experience. A Student Peer Adviser will contact you to set up your appointment for a time before or during first semester. You will be asked to fill in an online form before your appointment to get things started. We look forward to meeting you!

STUDY OVERSEAS WITH THE MELBOURNE GLOBAL MOBILITY PROGRAM
Studying overseas enables you to engage with the international science community. The Melbourne Global Mobility Program is designed to support and encourage you to undertake part of your studies overseas. Programs include a semester or two at an overseas university, short term programs, Summer research programs and overseas subjects run through the University of Melbourne. Check out options in first year as advance planning is usually required.

myWorld First Step sessions
Melbourne Global Mobility runs First Step sessions twice a week during semester (usually from 1.00 to 2.15pm)

Science-specific mobility information sessions
The Science Student Centre runs two information sessions each semester. Sessions will be advertised on the Melbourne Global Mobility website. Remember that you can always get advice from the Global Mobility Advisers via email.

VACATION WORK, VOLUNTEERING, INTERNSHIPS AND CAREERS
The paid work you do alongside your studies can really enhance your career prospects, by giving you skills that cannot always be found in your studies. All types of work experience and volunteering will complement the skills and knowledge gained in your studies. Participating in community engagement, leadership and volunteering activities is an excellent way to develop your skills and make a contribution to a cause you are passionate about. For information about opportunities, awards and funding:

http://equity.unimelb.edu.au/initiatives/
Volunteers Online (via careersonline.unimelb.edu.au)
Student Engagement Awards and Grants equity.unimelb.edu.au/initiatives
Many organisations and research institutes offer internship programs and the chance to complete a research project in an area of interest while gaining work experience in a world-class research facility or company. Visit teaching department offices for advice, or if you have an institute or organisation in mind you may approach them directly. Undertaking the Science and Technology Internship Subject SCIE30002 enables you to benefit from an academic framework for the internship as well as credit towards your degree.

THE STUDENTS@WORK (S@W) PROGRAM
The Students@Work Program is an initiative that provides on-campus professional employment opportunities to current University of Melbourne students. Amongst other positive attributes, the program is designed to provide students with key employability skills whilst enhancing their engagement and connectivity to the University. Careers & Employment has a wide range of resources and programs to help you with your job search. You can access these services during your course and up to one year after you graduate.

RESEARCH DISCOVERY TOURS
It’s not every day you get the opportunity to see inside Australia’s leading Research labs. These tours will show you what it is like to work in the research industry and help you decide whether you want to undertake graduate studies after you complete your undergraduate degree. Sign up to one of the Research Discovery Tours via the Science Student Centre Facebook page.

"The tour allowed me to gain a better idea of what research is currently being conducted. The researchers we spoke to were very knowledgeable and listening to their areas of research was of particular use to me in terms of determining what I plan to do with myself in the future. I am still trying to determine what to do as a career, and through this tour I am seriously considering going into a career of research, potentially coupled with some clinical work."

THE STUDENTS@WORK (S@W) PROGRAM
The Students@Work Program is an initiative that provides on-campus professional employment opportunities to current University of Melbourne students. Amongst other positive attributes, the program is designed to provide students with key employability skills whilst enhancing their engagement and connectivity to the University. Careers & Employment has a wide range of resources and programs to help you with your job search. You can access these services during your course and up to one year after you graduate.

"The tour allowed me to gain a better idea of what research is currently being conducted. The researchers we spoke to were very knowledgeable and listening to their areas of research was of particular use to me in terms of determining what I plan to do with myself in the future. I am still trying to determine what to do as a career, and through this tour I am seriously considering going into a career of research, potentially coupled with some clinical work."
<table>
<thead>
<tr>
<th>Subject</th>
<th>Semester One 2015</th>
<th>Semester Two 2015</th>
<th>Summer Semester 2016</th>
</tr>
</thead>
</table>
| **Biology** | BIOL10004 Biology of Cells and Organisms  
GENE10001 Genetics in the Media* | BIOL10005 Genetics & the Evolution of Life  
BIOL10001 Biology of Australian Flora & Fauna* |  
| **Chemistry** | CHEM10003 Chemistry 1  
CHEM10007 Fundamentals of Chemistry | CHEM10003 Chemistry 1  
CHEM10004 Chemistry 2 | CHEM10004 ** Chemistry 2 |
| **Earth Sciences** | ERTH10001 The Global Environment | ERTH10002 Understanding Planet Earth |  
| **Engineering Systems Design** | ENGR10004 Engineering Systems Design 1 | ENGR10004 Engineering Systems Design 1  
ENGR10003 Engineering Systems Design 2 | ENGR10003 ** Engineering Systems Design 2 |
| **Geography and Environments** | ENV10011 Natural Environments  
GEOG10001 Famine: The Geography of Scarcity  
ENV10006 Mapping Environments* | ENV10001 Natural Environments |  
| **Information Technology** | COMP10001 Foundations of Computing  
COMP10002 Foundations of Algorithms | COMP10001 Foundations of Computing  
COMP10002 Foundations of Algorithms |  
| **Life, Earth and Universe** | MULT10011 Introduction to Life, Earth and Universe* | PHYC10008 From the Solar System to the Cosmos* |  
| **Mathematics & Statistics** | MAST10008 Accelerated Mathematics 1  
MAST10005 Calculus 1  
MAST10006 Calculus 2  
MAST10007 Linear Algebra | MAST10009 Accelerated Mathematics 2  
MAST10005 Calculus 1  
MAST10006 Calculus 2  
MAST10007 Linear Algebra  
MAST10010 Data Analysis 1* | MAST10007 ** Linear Algebra |
| **Physics** | PHYC10001 Physics 1: Advanced  
PHYC10003 Physics 1  
PHYC10005 Physics 1: Fundamentals | PHYC10002 Physics 2: Advanced  
PHYC10004 Physics 2: Physical Science & Technology  
PHYC10006 Physics 2: Life Sciences & Environment |  
| **Psychology** | PSYC10003 Mind, Brain and Behaviour 1 | PSYC10004 Mind, Brain and Behaviour 2 |  

* These Level 1 Science subjects are not specifically on the pathway to any science major  
** You will be able to enrol in subjects for Summer Term 2016 from October 2015