

## B-SCI Bachelor of Science

<b>Year and Campus:</b>	2016 - Parkville
<b>CRICOS Code:</b>	002153M
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Level:</b>	Undergraduate
<b>Duration &amp; Credit Points:</b>	300 credit points taken over 36 months full time. This course is available as full or part time.
<b>Coordinator:</b>	The Program Director for the Bachelor of Science is Associate Professor Michelle Livett
<b>Contact:</b>	<p><b>Currently enrolled students:</b></p> <ul style="list-style-type: none"> <li># General information: <a href="https://ask.unimelb.edu.au">https://ask.unimelb.edu.au</a> (<a href="https://ask.unimelb.edu.au">https://ask.unimelb.edu.au</a>)</li> <li># <b>Contact Stop 1</b> (<a href="http://students.unimelb.edu.au/stop1">http://students.unimelb.edu.au/stop1</a>)</li> </ul> <p><b>Future students:</b></p> <ul style="list-style-type: none"> <li># Further information: <a href="https://futurestudents.unimelb.edu.au">https://futurestudents.unimelb.edu.au</a> (<a href="https://futurestudents.unimelb.edu.au">https://futurestudents.unimelb.edu.au</a>)</li> </ul>
<b>Course Overview:</b>	The Bachelor of Science (BSc) course is designed to provide excellent science education across a broad range of science and technology areas of study and equip students with a range of knowledge and skills to enhance their science studies. The degree will provide flexible pathways to employment, research higher degrees and many professional postgraduate programs.
<b>Learning Outcomes:</b>	<p>BSc graduates:</p> <ul style="list-style-type: none"> <li># apply their broad knowledge of science across a range of fields, with in-depth knowledge in at least one area of study, while demonstrating an understanding of the local and global contexts in which science is practised;</li> <li># articulate the methods of science and explain why current scientific knowledge is both contestable and testable by further inquiry;</li> <li># apply appropriate methods of research, investigation and design, to solve problems in science, mathematics, technology and/or engineering, including the planning and/or conduct of a significant project, problem or investigation;</li> <li># recognize the need for information; effectively search for, evaluate, manage and apply that information in support of scientific investigation or scholarly debate;</li> <li># employ highly developed conceptual, analytical, quantitative and technical skills and are adept with a range of technologies;</li> <li># articulate the relationship between different science communities of practice, the international scope of science, mathematics, technology and engineering knowledge and methods, and the contributions to their development that have been made by people with diverse perspectives, cultures and backgrounds;</li> <li># evaluate the role of science, mathematics, technology, and engineering in addressing current issues facing local and global communities, for example climate change, health and disease, food security, sustainable energy use;</li> <li># work effectively in groups to meet a shared goal with people whose disciplinary and cultural backgrounds differ from their own;</li> <li># communicate clearly and convincingly about science and technology ideas, practice and future contributions to expert and non-expert audiences, matching the mode of communication to their audience.</li> </ul>
<b>Course Structure &amp; Available Subjects:</b>	<p>Successful completion of 300 points comprising:</p> <ul style="list-style-type: none"> <li># 225 points of science subjects including: <ul style="list-style-type: none"> <li># At least 62.5 points at Level 1</li> <li># At least 62.5 points at Level 2</li> <li># At least 75 points at Level 3 (including 50 points of a prescribed science major at Level 3)</li> </ul> </li> <li># 50 points of breadth subjects including at least 12.5 points at Level 2 or Level 3</li> </ul>

# 25 points (either science subjects or breadth subjects) at Level 1, 2 or 3

**Additional requirements:**

- # No more than 125 points at Level 1 may be included in the BSc
- # No more than 37.5 points of breadth at Level 1 may be included in the BSc
- # Progression: Students must normally complete 50 points of study at one subject year level before proceeding to the next subject year level.
- # Diversity of Level 1 science study: Students must complete Level 1 subjects from at least two different areas of study. A maximum of 37.5 points at Level 1 from any single area of study may be completed. The areas of study available are: Biology; Chemistry; Earth Sciences; Engineering Systems; Geography and Environments; Computer Science; Mathematics and Statistics; Physics; Psychology

**Science points.**

Subjects attracting science points in the BSc are listed below, beneath the information about Majors and Specialisations.

**Special Arrangements:**

In the case of the study area of History and Philosophy of Science (HPS), students who seek to undertake further subjects in order to complete the equivalent of a major in HPS will be permitted to take up to 25 points of additional breadth study in HPS, replacing 25 points of the science requirements of the BSc. For a BSc student, the equivalent of a major in HPS is the completion of 100 points of HPS subjects (25 points at Level 1, 37.5 points at Level 2 and 37.5 points at Level 3 including HPSC30035 Knowledge in the Making. These students will be required to satisfy all other completion requirements of the BSc. This arrangement is only available to students who have not completed any other breadth subjects for credit in the BSc. In order to complete the 112.5 points required at Level 3 within this arrangement (i.e. across science and HPS studies), students should consider undertaking a Level 3 HPS subject in the second year of their course.

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Students who entered the BSc prior to 2015 should refer the handbook entry of the year they commenced

**Majors/Minors/  
Specialisations**

Completion of 50 points of study at third year level.

A number of these science majors include specialisations. Descriptions of the specialisations are located within the majors.

Students who commenced their course prior to 2015 and are planning to complete majors that are no longer offered should consult the handbook entry for the year they commenced their course and may then contact the Science Student Centre if they require further advice on major and subject selection.

Please note that as of 2015 the Atmosphere & Ocean Science and Geomatics majors were renamed to Climate & Weather and Spatial Systems respectively.

The structure, subject options or learning outcomes of these majors remain unchanged

Major/Minor/Specialisation
Agricultural Science
Animal Health and Disease
Animal Science and Management
Biochemistry and Molecular Biology
Bioengineering Systems
Biotechnology
Cell and Developmental Biology
Chemical Systems
Chemistry

Computational Biology
Computing and Software Systems
Climate and Weather
Civil Systems
Ecology and Evolutionary Biology
Electrical Systems
Environmental Science
Food Science
Forest Science
Genetics
Geography
Geology
Human Structure and Function
Immunology
Informatics
Marine Biology
Mathematical Physics
Mathematics and Statistics
Mechanical Systems
Mechatronics Systems
Microbiology and Immunology
Neuroscience
Pathology
Pharmacology
Physics
Physiology
Plant Science
Psychology
Spatial Systems
Zoology

### **Subjects available for science credit**

A full list of subjects available for science credit for the new generation Bachelor of Science course (B-SCI).

#### **Major/Minor/Specialisation**

Science-credited subjects - new generation B-SCI and B-ENG.

<b>Subject Options:</b>	See reference (above) to 'Subjects available for science credit'. Refer to the 'Find Breadth Subjects' section of the Handbook for advice on breadth subject options in the Bachelor of Science.
<b>Breadth Options:</b>	Breadth subjects offer you the opportunity to choose additional subjects from outside your major study area ( <b><u><a href="http://breadth.unimelb.edu.au/breadth/info/index.html">learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)</a></u></b> ) . <b><u><a href="/faces/htdocs/user/breadth/BreadthSearchResults.jsp?breadthcourse=B-SCI&amp;year=2016">View breadth subjects for this course (/faces/htdocs/user/breadth/BreadthSearchResults.jsp?breadthcourse=B-SCI&amp;year=2016)</a></u></b> .
<b>Breadth Tracks:</b>	Available Breadth Tracks
<b>Entry Requirements:</b>	<p><b>1. In order to be considered for entry, applicants must have completed:</b> one of</p> <p>(a) the Victorian Certificate of Education including</p> <ul style="list-style-type: none"> <li># VCE Units 3 and 4 – either a study score of at least 25 in one of English, English Language or Literature or a study score of at least 30 in English as an Additional Language, and</li> <li># VCE Units 3 and 4 – a study score of at least 25 in either one of Mathematical Methods or Specialist Mathematics and one of Biology, Chemistry or Physics; or both of Mathematical Methods and Specialist Mathematics</li> </ul> <p>(b) the International Baccalaureate Diploma including</p> <ul style="list-style-type: none"> <li># at least Grade 4 in English or English B (Standard Level or Higher Level), Mathematics and one of Biology, Chemistry or Physics;</li> </ul> <p>(c) a senior secondary program, foundation studies program or equivalent approved by the Academic Board including appropriate studies in English and Mathematics, and in at least one of Biology, Chemistry or Physics.</p> <p>Except for applicants eligible for Access Melbourne, <b><u><a href="http://coursesearch.unimelb.edu.au/undergrad/1510-bachelor-of-science">minimum ATAR or equivalent overall performance rankings apply (http://coursesearch.unimelb.edu.au/undergrad/1510-bachelor-of-science)</a></u></b> .</p> <p>Meeting these requirements does not guarantee selection.</p> <p><b>2. In ranking applications, the Selection Committee will consider:</b></p> <ul style="list-style-type: none"> <li># prior academic performance.</li> </ul> <p><b>3. The Selection Committee may seek further information to clarify any aspect of an application in accordance with the Academic Board rules (<u><a href="http://about.unimelb.edu.au/_data/assets/pdf_file/0007/1413727/Use-of-Selection-Instruments-Rules-of-the-Academic-Board-23-March-2015.pdf">http://about.unimelb.edu.au/_data/assets/pdf_file/0007/1413727/Use-of-Selection-Instruments-Rules-of-the-Academic-Board-23-March-2015.pdf</a></u>) on the use of selection instruments.</b></p> <p><b>Note</b></p> <ul style="list-style-type: none"> <li># For applications through the Victorian Tertiary Admission Centre, “middle-band” selection adjustments are made only on the basis of eligibility for Access Melbourne.</li> <li># An alternative pathway is available for applicants eligible for advanced standing of a least 100 points towards the science component of the B.Sc. including at least 25 points at second year level in a discipline area available in the BSc as a major study area. To be considered under this pathway, applicants must meet the University’s <b><u><a href="http://about.unimelb.edu.au/academicboard/resolutions">undergraduate English standards (http://about.unimelb.edu.au/academicboard/resolutions)</a></u></b> and have completed VCE Mathematical Methods (CAS) Units 3 and 4 with a study score of at least 25, or equivalent.</li> </ul>
<b>Core Participation Requirements:</b>	The Bachelor of Science welcomes applications from students with disabilities. It is University and degree policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student’s participation in the degree. The Bachelor of Science requires all students to enrol in subjects where they will require: the ability to comprehend complex science, technology and/or engineering systems related information; the ability to clearly and independently communicate a knowledge and application of science, technology and engineering systems principles and practices during assessment tasks; and in some areas of study the ability to actively and safely contribute in clinical, laboratory, and fieldwork/excursion activities. Students must possess behavioural and social attributes that enable them to participate in a complex learning environment. Students are required to take responsibility for their own participation and learning. They also contribute to the learning of other students in collaborative learning environments, demonstrating

interpersonal skills and an understanding of the needs of other students. Assessment may include the outcomes of tasks completed in collaboration with other students. There are additional inherent academic requirements for some major studies and subjects, and these requirements are listed within the description of the requirements for each of these majors and subjects. Students who feel their disability will impact on meeting this requirement are encouraged to discuss this matter with the relevant Subject Coordinator and the Disability Liaison Unit: <http://www.services.unimelb.edu.au/disability/> Major#specific core participation requirements Agricultural Science Major Specific Core Participation requirements: Fieldwork and Practicals The sites essential to this fieldwork are not wheelchair accessible and require students to traverse broken ground. Visual observation and interpretation of the sites is also an essential component, as is specimen and microscope work. Animal Health and Disease Major (Veterinary Bioscience Specialisation) Specific Core Participation requirements: Practical classes This major requires all students to actively, independently and safely participate in all practical classes, utilising a range of observational, communication, motor, intellectual, and behavioural and social skills. Visual acuity, muscle coordination, balance, and sensory tactile perception are essential for participation. Details of the participation requirements can be found at <http://www.vet.unimelb.edu.au/docs/CoreParticipationReqs.pdf> Animal Health and Disease Major (Animal Disease Biotechnology Specialisation) Specific Core Participation requirements: Practical classes This major requires all students to actively, independently and safely participate in all practical classes, utilising a range of observational, communication, motor, intellectual, and behavioural and social skills. Visual acuity, muscle coordination and balance are essential for participation. Details of the participation requirements can be found at <http://www.vet.unimelb.edu.au/docs/CoreParticipationReqsBSc.pdf> Animal Science and Management Major Specific Core Participation requirements: Fieldwork, practicals and laboratory experiments The sites essential to this fieldwork are not wheelchair accessible and may require students to traverse broken ground. Students are also required to undertake experiments including specimen and microscope work with assessment reliant on careful observation and visual interpretation of results. Practicals may also involve handling and working with animals. Chemical Systems Specific Core Participation requirements: Laboratory experiments This major requires students to undertake experiments using specialist software with assessment reliant on careful observation and visual interpretation of results. Ecology and Evolutionary Biology Major Specific Core Participation requirements: Fieldwork The sites essential to this fieldwork are not wheelchair accessible and require students to traverse broken ground. Visual observation and interpretation of the sites is also an essential component. Food Science Major Specific Core Participation requirements: Laboratory experiments This major requires students to undertake experiments using specialist software with assessment reliant on careful observation and visual interpretation of results. Geology Major Specific Core Participation requirements: Fieldwork The sites essential to this fieldwork are not wheelchair accessible and require students to traverse broken ground. Visual observation and interpretation of the sites is also an essential component, as is specimen and microscope work.

**Further Study:**

The Bachelor of Science degree provides pathways to honours, graduate professional entry degrees or, upon completion of appropriate research training preparation following the BSc, research higher degrees.

Honours - Depending on the major undertaken, students may apply for an Honours program upon completion of the Bachelor of Science. Refer to the course entry for further details:

**<https://handbook.unimelb.edu.au/view/current/BH-SCI> (././view/current/BH-SCI)**

Graduate Professional Entry Degrees For students who wish to continue professional studies at graduate level, the degree provides a pathway into a range of graduate professional entry programs, some of which also provide research training.

**<http://futurestudents.unimelb.edu.au/grad/grad-programs/professional-entry> (<http://futurestudents.unimelb.edu.au/grad/grad-programs/professional-entry>)**

Research Higher Degrees For students who wish to explore science research questions in greater depth, there will be opportunities to proceed to Research Higher Degrees at masters and doctoral level. Research training preparation within the Honours year, Postgraduate Diploma or a Masters degree will be required as preparation for a research higher degree.

**Graduate Attributes:**

The Bachelor of Science has the objective of preparing graduates who embody the University of Melbourne graduate attributes.

**Professional Accreditation:**

Please see the handbook entry for the following majors for details of their level of professional accreditation:

# Psychology

	# Computing and Software Systems
<b>Generic Skills:</b>	A description of the generic skills expected of a graduate of the Bachelor of Science is contained within the degrees Learning outcomes statement (see 'Learning Outcomes' above).