

902-BB Bachelor of Arts and Bachelor of Science

Year and Campus:	2008
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Level:	Undergraduate
Duration & Credit Points:	
Contact:	Faculty of Science Office Ground Floor Old Geology Building University of Melbourne Victoria 3010 AUSTRALIA Telephone +61 3 8344 6404 Facsimile +61 3 8344 5803
Course Overview:	<p>There is no first year intake into this course from 2008.</p> <p>The Bachelor of Arts/Bachelor of Science combined course provides students with an opportunity to obtain a general education in the humanities, social sciences and the languages and cultures of other people, and also to complete a major in one or more science disciplines.</p>
Objectives:	<p>In arts/science at the University of Melbourne, we expect to educate our students in the fundamental skills of transforming information into knowledge and communicating this knowledge clearly. These outcomes are fully consistent with the University's general ambition for our graduates, and emphasise the transferability of the skills practised in the arts and in science.</p> <p>Throughout their course, students will find that many of the abilities that they develop are shared by, and so are valued by and are applicable to, activities in all walks of life. In particular, these are the skills that are essential to providing leadership to the science-technology base of the Australian economy and culture.</p> <p>The Bachelor of Arts and Bachelor of Science degrees aim to educate and train students in both science and humanities areas of study. The combined course enables students to access a major (specialisation) stream in both the arts and science components of the course, which may be chosen as complementary or independent to each other. In addition, the length of the course allows students to pursue minor studies in other discipline areas beyond their majors. Graduates are therefore aware of and educated in a broad variety of knowledge areas.</p>
Subject Options:	<p>The BA/BSc degree requires the completion of a minimum (and maximum) of 500 points of study. Within the 500 points students must satisfy the minimum requirements for both the BSc component and the BA component. These requirements are detailed below.</p> <p>Subjects offered in the areas of Geography, History and Philosophy of Science and Philosophy cannot count toward the science requirement of the BA/BSc course. The only exception is 121-306 Applied Ecology (formerly 121-030). Students completing 121-306 (or 121-030) may receive credit for this subject towards either the BA or BSc component of the BA/BSc course. Students should advise the Faculty of Science Office if they would like the subject to count toward the BSc component of the BA/BSc course. BA/BSc students cannot complete a science major in geography or history and philosophy of science.</p> <p>Students undertaking psychology subjects can receive credit toward either the BSc or BA component of the BA/BSc course. Credit for psychology points cannot be split between the two components. Students should advise the Faculty of Science Office if they would like psychology to count toward the science requirement of their BSc course.</p> <p>Arts requirement</p> <p>A minimum of 225 arts points is required, of which:</p> <ul style="list-style-type: none"> # 50 points must be at 100-level; # 75 points must be at 200-level; and # 100 points must be at 300-level. <p>This study must be in arts-approved subjects.</p> <p>Science requirement</p> <p>A minimum of 237.5 science points is required, which must include:</p> <ul style="list-style-type: none"> # between 75 and 125 science points at the 100-level; # completion of 50 points of a prescribed science major at the 300-level.

All subjects attracting **science points** are indicated as such within the individual subject description.

Note that:

- # there are no 200-level requirements;
- # students completing a science major in psychology must complete 50 science points at 300-level (37.5 points of prescribed 300-level psychology subjects plus an additional 12.5 points of 300-level science subjects)
- # BA/BSc students cannot complete a science major in geography or history and philosophy of science.

Balance of points

The remaining 37.5 points may be taken from subjects offered by either faculty.

All students in the BA/BSc are required to complete a science major.

A science major is defined as 50 points at 300-level in a discipline.

- # The psychology major is the clear exception to this rule as the psychology major requires completion of nine compulsory subjects and at least one elective (a minimum of 125 points in total)
- # The biotechnology major is also comprised of less than 50 points at 300-level, but it can only be undertaken in conjunction with another life sciences major (see biotechnology major description for list of applicable life sciences majors).
- # The environmental science major can only be undertaken in conjunction with a second science major (which cannot be biotechnology).

To complete a major, students complete one of the science majors listed below. Students may not complete alternative combinations of subjects to major unless written approval is obtained from the Associate Dean (Undergraduate Programs), Faculty of Science.

The descriptions of science majors may vary from year to year. Bachelor of Science students may complete a major as defined by the current structure or structure detailed in a previous year's handbook (e.g. The 2007 Undergraduate Studies Handbook) applicable to any year the student was enrolled in the course.

The following science majors are available to BA/BSc students:

- # **Anatomy**
- # **Atmosphere and Ocean Sciences**
- # **Biochemistry and Molecular Biology**
- # **Biotechnology**
- # **Botany**
- # **Cell Biology**
- # **Chemistry**
- # **Computer Science**
- # **Conservation and Australian Wildlife**
- # **Ecology**
- # **Environmental Science**
- # **Genetics**
- # **Geology**
- # **Immunology**
- # **Marine Biology**
- # **Mathematics and Statistics**
- # **Microbiology**
- # **Neuroscience**
- # **Pathology**
- # **Pharmacology**
- # **Physics**
- # **Physiology**
- # **Psychology**
- # **Reproduction and Development**
- # **Vision Science**

Zoology**Anatomy major**

Major study in **Anatomy**.

Completion of 50 points of study at 300-level.

Compulsory subjects: 516-304, 516-305, 516-308. Plus one of 516-302, 516-306, 516-307*, 536-308.

*Research project must be related to anatomy.

Subject	Study Period Commencement:	Credit Points:
516-304 Functional and Applied Anatomy	Semester 2	12.50
516-305 Neuroscience: Systems & Higher Functions	Semester 2	12.50
516-308 Advanced Studies in Human Anatomy	Semester 1	12.50
516-302 Developmental Biology	Semester 2	12.50
516-306 Developmental Neurobiology	Semester 1	12.50
516-307 Research Project	Semester 1, Semester 2, Summer	12.50
536-308 Physiology of Muscle & Exercise	Semester 1	12.50

Atmosphere and Ocean Sciences major

Major study in **Atmosphere and Ocean Sciences**.

Completion of 50 points of study at 300-level.

Compulsory subjects: 625-331 and 625-332.

Subject	Study Period Commencement:	Credit Points:
625-331 Atmosphere-Ocean Interaction	1	25.000
625-332 Climate: Mechanisms & Variability	2	25.000

Biochemistry and Molecular Biology major

Major study in **Biochemistry and Molecular Biology**.

Completion of 50 points of study at 300-level.

Compulsory subject: one of 521-321 or 521-322.

Plus three of 521-301, 521-302, 521-303, 521-304, 521-305, 521-307.

Subject	Study Period Commencement:	Credit Points:
521-321 Gene Technology & Protein Expression	1	12.500
521-322 Protein Biochemistry and Proteomics	2	12.500
521-301 Protein Structure and Function	Semester 2	12.50
521-302 Functional Genomics and Bioinformatics	Semester 1	12.50
521-303 Molecular Aspects of Cell Biology	Semester 1	12.50
521-304 Cell Signalling and Neurochemistry	Semester 2	12.50
521-305 Biochemistry of Metabolism & Nutrition	Semester 1	12.50
521-307 Biomolecular Structure & Bioinformatics	Not offered 2008	12.50

Biotechnology major

Major study in Biotechnology.

Students may only complete this major in conjunction with another life sciences major selected from anatomy, biochemistry and molecular biology, botany, cell biology, chemistry, genetics, immunology, microbiology, neuroscience, pathology, pharmacology, physiology, reproduction and development or zoology.

Completion of 600-205 plus 37.5 points of study at 300-level in biotechnology.

Biotechnology subjects: 521-301, 521-302, 521-303, 521-307, 606-306, 606-309, 610-332, 610-333, 652-301, 652-302, 652-303, 652-305, 526-301, 526-302, 526-304, 531-303, 136-337.

Biotechnology practical laboratory subjects: 521-321, 521-322, 610-399, 652-304, 652-306, 526-321, 526-324, 526-326, 526-327, 534-306, 516-302, 654-304.

At least 25 points of the 37.5 points in the biotechnology major must be taken from a department different from that responsible for teaching the student's other major.

At least 25 points of the combined 87.5 points at 300-level for the biotechnology major and the student's other major must be practical laboratory subjects.

Subject	Study Period Commencement:	Credit Points:
600-205 Biotechnology in Practice	Semester 2	12.50
521-301 Protein Structure and Function	Semester 2	12.50
521-302 Functional Genomics and Bioinformatics	Semester 1	12.50
521-303 Molecular Aspects of Cell Biology	Semester 1	12.50
521-307 Biomolecular Structure & Bioinformatics	Not offered 2008	12.50
606-306 Plant Molecular Biology & Biotechnology	Semester 2	12.50
606-309 Frontiers of Cell Biology	Semester 1	12.50
610-332 Bio-organic Chemistry	Semester 1	12.50
610-333 Molecular Technology	Semester 2	12.50
652-301 Evolutionary Genetics and Genomics	Semester 1	12.50
652-302 Genes: Organisation and Function	Semester 1	12.50
652-303 Developmental and Cellular Genetics	Semester 2	12.50
652-305 Human and Medical Genetics	Semester 2	12.50
526-301 Microbial Cells and Genomes	Semester 2	12.50
526-302 Microbial Biotechnology	Not Offered	
526-304 Principles of Immunology	Semester 1	12.50
531-303 Molecular/Genetic Basis of Disease-Lect	Semester 2	12.50
136-337 Biotechnology in Modern Society (Sci.3)	Semester 2	12.50
521-321 Gene Technology & Protein Expression	1	12.500
521-322 Protein Biochemistry and Proteomics	2	12.500
610-399 Chemical Research Project	Semester 2, Summer	12.50
652-304 Genetic Analysis	Semester 2	12.50
652-306 Experimental Genetics	2	12.500
526-321 Molecular Microbiology Techniques	Semester 1	12.50

526-324 Immunological Techniques	Semester 1	12.50
526-326 Projects: Immunology	Semester 2	12.50
526-327 Projects: Microbiology	Semester 2	12.50
534-306 Drug Discovery	Semester 2	12.50
516-302 Developmental Biology	Semester 2	12.50
654-304 Reproduction	Semester 2	12.50

Botany majorMajor study in **Botany**.

Completion of 50 points of study at 300-level selected from 606-302, 606-303, 606-304, 606-305, 606-306, 606-309, 606-310, 121-306, 600-311*, 600-312*.

*Research project must be related to botany.

Students may only include one of 600-311 and 600-312 towards this major.

Subject	Study Period Commencement:	Credit Points:
606-302 Marine Botany	Semester 2	12.50
606-303 Plant Systematics and Evolution	Semester 1	12.50
606-304 Environmental Plant Physiology	Semester 1	12.50
606-305 Vegetation Management and Conservation	Semester 2	12.50
606-306 Plant Molecular Biology & Biotechnology	Semester 2	12.50
606-309 Frontiers of Cell Biology	Semester 1	12.50
606-310 Field Botany	Summer	12.50
121-306 Applied Ecology	Semester 2	12.50
600-311 Research Project A	Semester 1	12.50
600-312 Research Project B	Semester 2, Summer	12.50

Cell Biology majorMajor study in **Cell Biology**.

Completion of 50 points of study at 300-level selected from 516-302, 516-306, 521-303, 606-306, 606-309, 652-303, 516-307*, 600-311*, 600-312*.

*Research project must be related to cell biology.

Students may only include one of 516-307, 600-311 and 600-312 towards this major.

Subject	Study Period Commencement:	Credit Points:
516-302 Developmental Biology	Semester 2	12.50
516-306 Developmental Neurobiology	Semester 1	12.50
521-303 Molecular Aspects of Cell Biology	Semester 1	12.50
606-306 Plant Molecular Biology & Biotechnology	Semester 2	12.50
606-309 Frontiers of Cell Biology	Semester 1	12.50
652-303 Developmental and Cellular Genetics	Semester 2	12.50
516-307 Research Project	Semester 1, Semester 2, Summer	12.50
600-311 Research Project A	Semester 1	12.50

600-312 Research Project B	Semester 2, Summer	12.50
----------------------------	--------------------	-------

Chemistry majorMajor study in **Chemistry**.

Completion of 50 points of study at 300-level.

50 points selected from 300-level chemistry subjects and including a minimum of two of the following core branches of chemistry (List A) plus a minimum of one of the following key chemistry subjects (List B) - noting that some combinations from List A and List B are mutually exclusive.

LIST A (core branches of chemistry) - choose a minimum of two branches:

- # Physical chemistry: Either 610-310 or both of 610-311 and 610-315
- # Organic chemistry: Either 610-320 or both of 610-321 and 610-325
- # Inorganic chemistry: Either 610-340 or both of 610-341 and 610-345
- # Analytical and environmental chemistry: 610-360

LIST B (key chemistry subjects) - choose a minimum of one of 610-310, 610-311, 610-320, 610-321, 610-340, 610-341, 610-360.

Subject	Study Period Commencement:	Credit Points:
610-311 Physical Chemistry IIIB	Semester 1	12.50
610-315 Physical Chemistry Practical III	Semester 1	6.25
610-310 Physical Chemistry IIIA	Semester 1	12.50
610-321 Organic Chemistry IIIB	Semester 2	12.50
610-320 Organic Chemistry IIIA	Semester 2	12.50
610-325 Organic Chemistry Practical III	Semester 2	6.25
610-341 Inorganic Chemistry IIIB	Semester 1	12.50
610-345 Inorganic Chemistry Practical III	Semester 1	6.25
610-340 Inorganic Chemistry IIIA	Semester 1	12.50
610-360 Analytical & Environmental Chemistry	Semester 2	12.50
610-332 Bio-organic Chemistry	Semester 1	12.50
610-333 Molecular Technology	Semester 2	12.50

Computer Science majorMajor study in **Computer Science**.

Completion of 50 points of study at 300-level selected from 433-303, 433-313, 433-330, 433-332, 433-341, 433-351, 433-352, 433-353, 433-361, 433-371, 433-380.

Subject	Study Period Commencement:	Credit Points:
433-303 Artificial Intelligence	Semester 2	12.50
433-313 Computer Design	Semester 2	12.50
433-330 Theory of Computation	Semester 1	12.50
433-332 Operating Systems	Semester 1	12.50
433-341 Software Engineering Process & Practice	Semester 1	12.50
433-351 Database Systems	Semester 1	12.50
433-352 Data on the Web	Semester 2	12.50

433-353 Networks and Communications	Semester 2	12.50
433-361 Programming Language Implementation	Not offered 2008	12.50
433-371 Interactive System Design	Semester 2	12.50
433-380 Graphics and Computation	Semester 1	12.50

Conservation and Australian Wildlife majorMajor study in **Conservation and Australian Wildlife**.

Completion of 50 points of study at 300-level.

Compulsory subjects: 606-310, 654-308, 654-309, 654-313.

Subject	Study Period Commencement:	Credit Points:
606-310 Field Botany	Summer	12.50
654-308 Conservation Biology	Semester 2	12.50
654-309 Field Biology of Australian Wildlife	Semester 2	12.50
654-313 Ecology in Changing Environments	Semester 1	12.50

Ecology majorMajor study in **Ecology**.

Completion of 50 points of study at 300-level selected from 121-033, 606-301, 606-304, 654-302, 654-312, 654-313, 121-306

Subject	Study Period Commencement:	Credit Points:
121-033 Environmental Hydrology	Not offered 2008	25
606-304 Environmental Plant Physiology	Semester 1	12.50
654-302 Experimental Marine Ecology	Summer	12.50
654-312 Marine Ecology	Semester 2	12.50
654-313 Ecology in Changing Environments	Semester 1	12.50
121-306 Applied Ecology	Semester 2	12.50

Environmental Science majorMajor study in **Environmental Science**.

Students may only complete this major in conjunction with another science major that cannot be biotechnology.

Completion of 50 points of study at 300-level.

Compulsory subjects: 600-303 and 600-301.

Plus 25 points selected from 121-033, 451-312, 121-306, 610-360, 620-371, 654-308,

Subject	Study Period Commencement:	Credit Points:
600-303 Environmental Risk Assessment	Semester 1	12.50
600-301 Problem Solving in Environmental Science	Semester 2	12.50
121-033 Environmental Hydrology	Not offered 2008	25
451-312 GIS & Remote Sensing for Enviro Science	Not offered 2008	12.500
121-306 Applied Ecology	Semester 2	12.50
610-360 Analytical & Environmental Chemistry	Semester 2	12.50

620-371 Linear Models	Semester 1	12.50
654-308 Conservation Biology	Semester 2	12.50

Genetics major

Major study in **Genetics**.

Completion of 50 points of study at 300-level.

Compulsory subjects: 652-302 and 652-304.

Plus two of 652-301, 652-303, 652-305, 652-306, 600-312*.

*Research project must be related to genetics.

Subject	Study Period Commencement:	Credit Points:
652-301 Evolutionary Genetics and Genomics	Semester 1	12.50
652-302 Genes: Organisation and Function	Semester 1	12.50
652-304 Genetic Analysis	Semester 2	12.50
652-303 Developmental and Cellular Genetics	Semester 2	12.50
652-306 Experimental Genetics	2	12.500
600-312 Research Project B	Semester 2, Summer	12.50

Geology major

Major study in **Geology**.

Completion of 50 points of study at 300-level.

Compulsory subjects: 625-301, 625-302.

Plus two of 625-303, 625-304, 625-305, 625-307, 625-308, 625-313, 600-311*, 600-312*.

*Research project must be related to geology.

Subject	Study Period Commencement:	Credit Points:
625-301 Structural Geology & Geodynamics	Semester 1	12.50
625-302 Sedimentary Geology	Semester 2	12.50
625-303 Geochemistry & Petrogenesis	Semester 1	12.50
625-304 Geophysics	Semester 2	12.50
625-305 Economic Geology	Semester 2	12.50
625-307 Hydrogeology	Semester 1	12.50
625-308 Digital Geoscience	1	12.500
625-313 Advanced Field Geology	Semester 2	12.50
600-311 Research Project A	Semester 1	12.50
600-312 Research Project B	Semester 2, Summer	12.50

Immunology major

Major study in **Immunology**.

Completion of 50 points of study at 300-level.

Compulsory subjects: 526-304, 526-305, 526-326, 526-327.

Students unable to obtain a place in 526-326 may complete an alternative 300-level subject taught by the Department of Microbiology and Immunology, with approval of the department.

Subject	Study Period Commencement:	Credit Points:
526-304 Principles of Immunology	Semester 1	12.50

526-305 Medical and Applied Immunology	Semester 2	12.50
526-326 Projects: Immunology	Semester 2	12.50
526-324 Immunological Techniques	Semester 1	12.50

Marine Biology major

Major study in **Marine Biology**.

Completion of 50 points of study at 300-level selected from 121-071, 606-302, 610-360, 654-302, 654-306, 654-312, 654-313, 600-311*, 600-312*.

Notes.

*Research project must be related to marine biology

Only one of 600-311 and 600-312 can count towards this major.

Only one of 610-360 and 121-070 can count towards this major.

Subject	Study Period Commencement:	Credit Points:
121-071 Coastal Geomorphology	1	12.500
606-302 Marine Botany	Semester 2	12.50
610-360 Analytical & Environmental Chemistry	Semester 2	12.50
654-302 Experimental Marine Ecology	Summer	12.50
654-306 Marine Zoology	Summer	12.50
654-312 Marine Ecology	Semester 2	12.50
654-313 Ecology in Changing Environments	Semester 1	12.50
600-311 Research Project A	Semester 1	12.50
600-312 Research Project B	Semester 2, Summer	12.50

Mathematics and Statistics major (Applied Mathematics)

Major study in **Mathematics and Statistics**, specializing in Applied Mathematics.

Completion of 50 points of study at 300-level.

Compulsory subject: 620-331.

Plus three of 620-332, 620-352, 620-353, 620-381.

Subject	Study Period Commencement:	Credit Points:
620-331 Applied Partial Differential Equations	Semester 1	12.50
620-332 Integral Transforms & Asymptotics	Semester 2	12.50
620-342 Industrial & Applied Mathematics	Semester 2	12.50
620-352 Graph Theory	Semester 1	12.50
620-353 Discrete Mathematics	Semester 2	12.50
620-381 Computational Mathematics	Semester 1	12.50

Mathematics and Statistics major (Pure Mathematics)

Major study in **Mathematics and Statistics**, specializing in Pure Mathematics.

Completion of 50 points of study at 300-level.

Three of 620-311, 620-312, 620-321, 620-322.

Plus either the fourth of the subjects listed above or one of 620-351, 620-352, 620-353.

Subject	Study Period Commencement:	Credit Points:
---------	----------------------------	----------------

620-311 Metric Spaces	Semester 1	12.50
620-312 Linear Analysis	Semester 2	12.50
620-321 Algebra	Semester 1	12.50
620-322 Topology	Semester 2	12.50
620-351 Number Theory	Semester 2	12.50
620-352 Graph Theory	Semester 1	12.50
620-353 Discrete Mathematics	Semester 2	12.50

Mathematics and Statistics major (Statistics)

Major study in Mathematics and Statistics, specializing in Statistics.

Completion of 50 points of study at 300-level.

Compulsory subject: 620-371.

Plus at least two of 620-301, 620-302, 620-372, 620-374.

Plus any other 300-level subject offered by the Department of Mathematics and Statistics (if only two of the above subjects are included).

Subject	Study Period Commencement:	Credit Points:
620-371 Linear Models	Semester 1	12.50
620-301 Stochastic Modelling	Semester 1	12.50
620-302 Chance and Options Pricing	Semester 2	12.50
620-372 Applied Statistical Inference	Semester 2	12.50
620-374 Sampling and Forecasting	Semester 2	12.50

Mathematics and Statistics major (Mathematical Physics)

Major study in Mathematics and Statistics, specializing in Mathematical Physics.

Completion of 50 points of study at 300-level.

Compulsory subject: 620-331.

Plus one of 620-332, 620-342, 620-353.

Plus one of 640-321 and 620-341.

Plus one of 640-322 and 640-342.

Subject	Study Period Commencement:	Credit Points:
620-331 Applied Partial Differential Equations	Semester 1	12.50
620-332 Integral Transforms & Asymptotics	Semester 2	12.50
620-342 Industrial & Applied Mathematics	Semester 2	12.50
620-353 Discrete Mathematics	Semester 2	12.50
640-321 Quantum Mechanics (Adv)	Semester 1	12.50
640-341 Quantum Mechanics	Semester 1	12.50
640-342 Statistical Physics	Not offered 2008	12.50

Mathematics and Statistics major (Operations Research)

Major study in Mathematics and Statistics, specializing in Operations Research.

Completion of 50 points of study at 300-level.

Compulsory subjects: 620-361 and 620-362.

Plus two other 300-level subjects offered by the Department of Mathematics and Statistics.

Subject	Study Period Commencement:	Credit Points:
620-361 Operations Research: Techniques	Semester 1	12.50

620-362 Applied Operations Research	Semester 2	12.50
-------------------------------------	------------	-------

Mathematics and Statistics major (Financial Mathematics)

Major study in Mathematics and Statistics, specializing in Financial Mathematics.
 Completion of 50 points of study at 300-level.
 Compulsory subjects: 620-301, 620-302, 620-381.
 Plus one of 620-361, 620-371, 620-374.

Subject	Study Period Commencement:	Credit Points:
620-301 Stochastic Modelling	Semester 1	12.50
620-302 Chance and Options Pricing	Semester 2	12.50
620-381 Computational Mathematics	Semester 1	12.50
620-361 Operations Research: Techniques	Semester 1	12.50
620-371 Linear Models	Semester 1	12.50
620-374 Sampling and Forecasting	Semester 2	12.50

Mathematics and Statistics major (Discrete Mathematics)

Major study in Mathematics and Statistics, specializing in Discrete Mathematics.
 Completion of 50 points of study at 300-level.
 Compulsory subjects: 620-352 and 650-353.
 Plus at least one of 620-351 and 620-381.
 Plus another 300-level subject offered by the Department of Mathematics and Statistics (if only one of the above subjects is included).

Subject	Study Period Commencement:	Credit Points:
620-352 Graph Theory	Semester 1	12.50
620-353 Discrete Mathematics	Semester 2	12.50
620-351 Number Theory	Semester 2	12.50
620-381 Computational Mathematics	Semester 1	12.50

Microbiology major

Major study in **Microbiology**.
 Completion of 50 points of study at 300-level.
 Compulsory subject: 526-321.
 Plus three of 526-301, 526-302, 526-313, 526-314, 526-327.

Subject	Study Period Commencement:	Credit Points:
526-321 Molecular Microbiology Techniques	Semester 1	12.50
526-301 Microbial Cells and Genomes	Semester 2	12.50
526-302 Microbial Biotechnology	Not Offered	
526-313 Medical Microbiology: Cellular Pathogens	Semester 1	12.50
526-314 Medical Microbiology: Viruses	Semester 2	12.50
526-327 Projects: Microbiology	Semester 2	12.50

Neuroscience major

Major study in **Neuroscience**.
 Completion of 50 points of study at 300-level.
 Compulsory subjects: 516-305 and 536-303.
 Plus two of 516-306, 516-307*, 521-304, 534-302, 536-302, 654-305.
 *Research project must be related to neuroscience.

Subject	Study Period Commencement:	Credit Points:
516-305 Neuroscience: Systems & Higher Functions	Semester 2	12.50
536-303 The Brain: Neurophysiology of Behaviour	Semester 1	12.50
516-306 Developmental Neurobiology	Semester 1	12.50
516-307 Research Project	Semester 1, Semester 2, Summer	12.50
521-304 Cell Signalling and Neurochemistry	Semester 2	12.50
534-302 Neuropharmacology	Semester 1	12.50
536-302 Molecular Neurophysiology	Semester 2	12.50
654-305 Experimental Animal Behaviour	Semester 1	12.50
512-350 Brain, Cognition and Behaviour 3	Semester 1	12.50
512-330 Human Psychophysiology 3	Semester 2	12.50
512-335 Advanced Cognition 3	Semester 1	12.50

Neuroscience major (Behavioural Neuroscience)

Major study in Neuroscience, specializing in Behavioural Neuroscience.

Completion of 50 points of study at 300-level.

Compulsory subjects: 516-305, 536-303, 512-350.

Plus one of 512-330, 512-335.

Subject	Study Period Commencement:	Credit Points:
516-305 Neuroscience: Systems & Higher Functions	Semester 2	12.50
536-303 The Brain: Neurophysiology of Behaviour	Semester 1	12.50
512-350 Brain, Cognition and Behaviour 3	Semester 1	12.50
512-330 Human Psychophysiology 3	Semester 2	12.50
512-335 Advanced Cognition 3	Semester 1	12.50

Pathology major

Major study in **Pathology**.

Completion of 50 points of study at 300-level.

Compulsory subjects: 531-301, 531-302, 531-303, 531-304.

Subject	Study Period Commencement:	Credit Points:
531-301 Cellular Basis of Disease	Semester 1	12.50
531-302 Techniques for Investigation of Disease	Semester 1	12.50
531-303 Molecular/Genetic Basis of Disease-Lect	Semester 2	12.50
531-304 Molecular/Genetic Basis of Disease-Prac	Semester 2	12.50

Pharmacology major

Major study in **Pharmacology**.

Completion of 50 points of study at 300-level.

Compulsory subject: 534-304.

Plus 25 points selected from 534-304, 534-305, 534-306, 516-307.

*Research project must be related to pharmacology.

Subject	Study Period Commencement:	Credit Points:
---------	----------------------------	----------------

534-301 Cellular and Molecular Pharmacology	Semester 1	25
534-304 Pharmacology of Therapeutic Substances	Semester 2	25
534-302 Neuropharmacology	Semester 1	12.50
534-305 Toxicology	Semester 2	12.50
534-306 Drug Discovery	Semester 2	12.50
534-311 Drug Development Techniques	Not offered 2008	12.500
516-307 Research Project	Semester 1, Semester 2, Summer	12.50

Physics majorMajor study in **Physics**.

Completion of 50 points of study at 300-level.

Compulsory subject: either 640-321 or 640-341.

Plus one of 640-393, 640-394, 640-364.

Plus two other 300-level physics subjects.

Subject	Study Period Commencement:	Credit Points:
640-321 Quantum Mechanics (Adv)	Semester 1	12.50
640-341 Quantum Mechanics	Semester 1	12.50
640-393 Laboratory Work A	Semester 1, Semester 2	12.50
640-394 Laboratory Work B	Semester 1, Semester 2	12.50
640-364 Computational Physics	Semester 2	12.50

Physics major (Mathematical Physics)

Major study in Physics, specializing in Mathematical Physics.

Completion of 50 points of study at 300-level.

Compulsory subject: 620-331.

Plus one of 620-332, 620-342, 620-353.

Plus one of 640-321 and 620-341.

Plus one of 640-322 and 640-342.

Subject	Study Period Commencement:	Credit Points:
620-331 Applied Partial Differential Equations	Semester 1	12.50
620-332 Integral Transforms & Asymptotics	Semester 2	12.50
620-342 Industrial & Applied Mathematics	Semester 2	12.50
620-353 Discrete Mathematics	Semester 2	12.50
640-321 Quantum Mechanics (Adv)	Semester 1	12.50
640-341 Quantum Mechanics	Semester 1	12.50
640-342 Statistical Physics	Not offered 2008	12.50

Physiology majorMajor study in **Physiology**.

Completion of 50 points of study at 300-level selected from 536-301, 536-302, 536-303,

536-304, 536-308, 536-311, 516-307*.

*Research project must be related to physiology.

Subject	Study Period Commencement:	Credit Points:
536-301 Cardiovascular Health: Genes & Hormones	Semester 1	12.50

536-302 Molecular Neurophysiology	Semester 2	12.50
536-303 The Brain: Neurophysiology of Behaviour	Semester 1	12.50
536-304 Advanced Experimental Physiology	Semester 2	12.50
536-308 Physiology of Muscle & Exercise	Semester 1	12.50
536-311 Molecular/Cellular Basis of Physiology	Semester 2	12.50
516-307 Research Project	Semester 1, Semester 2, Summer	12.50

Psychology major

Major study in **Psychology**.

A major study in psychology, accredited by the Australian Psychological Society, consists of nine compulsory subjects and at least one elective subject (a minimum of 125 credit points).

Compulsory subjects

Level 1: 512-120, 512-121.

Level 2: 512-220, 512-221, 512-222, 512-223, 512-224.

Level 3: 512-320, 512-324.

Electives at Level 3: 512-322, 512-330, 512-335, 512-345, 512-350, 512-360, 512-370, 512-380.

Although the major study in psychology only requires 37.5 points at 300-level, undergraduate science students must complete 50 points of 300-level science subjects to satisfy their degree requirements.

Bachelor of Arts/Bachelor of Science students may complete a major study in psychology as part of the BA component or the BSc components. Credit for psychology points cannot be split between the two components.

Subject	Study Period Commencement:	Credit Points:
512-220 Quantitative Methods for Psychology 2	Semester 1	12.50
512-221 Developmental Psychology 2	Not offered 2008	12.50
512-222 Behavioural Neuroscience 2	Not offered 2008	12.50
512-223 Personality and Social Psychology 2	Not offered 2008	12.50
512-224 Cognitive Psychology 2	Not offered 2008	12.50
512-320 Research Methods 3	Semester 1, Semester 2	12.50
512-324 Intro. to Psychological Disorders 3	Semester 1	12.50
512-322 Industrial/Organisational Psychology 3	Semester 2	12.50
512-330 Human Psychophysiology 3	Semester 2	12.50
512-335 Advanced Cognition 3	Semester 1	12.50
512-345 Environmental Psychology 3	2	12.500
512-350 Brain, Cognition and Behaviour 3	Semester 1	12.50
512-360 Personality and Social Psychology 3	Semester 2	12.50
512-370 Cognitive and Neuropsych. Development 3	Semester 2	12.50
512-380 Personal and Social Development 3	Semester 1	12.50

Reproduction and Development major

Major study in **Reproduction and Development**.

Completion of 50 points of study at 300-level.

Compulsory subjects: 654-304 and 516-302.
Plus two of 606-309, 652-303, 516-306, 521-304, 654-307, 654-309, 516-307*, 600-311*, 600-312*.

*Research project must be related to reproduction and development.

Students may only include one of 516-307, 600-311 and 600-312 towards this major.

Subject	Study Period Commencement:	Credit Points:
654-304 Reproduction	Semester 2	12.50
516-302 Developmental Biology	Semester 2	12.50
606-309 Frontiers of Cell Biology	Semester 1	12.50
652-303 Developmental and Cellular Genetics	Semester 2	12.50
516-306 Developmental Neurobiology	Semester 1	12.50
521-304 Cell Signalling and Neurochemistry	Semester 2	12.50
654-307 Evolution and the Human Condition	Semester 1	12.50
654-309 Field Biology of Australian Wildlife	Semester 2	12.50
516-307 Research Project	Semester 1, Semester 2, Summer	12.50
600-311 Research Project A	Semester 1	12.50
600-312 Research Project B	Semester 2, Summer	12.50

Vision Science major

Major study in **Vision Science**.

Completion of 50 points of study at 300-level selected from 655-321, 655-328, 655-341, 655-351, 600-311*, 600-312*.

*Research project must be related to vision science.

Students may only include one of 600-311 and 600-312 towards this major.

Subject	Study Period Commencement:	Credit Points:
655-321 Practical Problems in Vision	Semester 2	12.50
655-328 Neural Basis of Vision	Semester 1	12.50
655-341 Ocular Histopathology	Semester 1	12.50
655-351 Ophthalmic Lenses and Dispensing	Semester 2	12.50
600-311 Research Project A	Semester 1	12.50
600-312 Research Project B	Semester 2, Summer	12.50

Zoology major

Major study in **Zoology**.

Completion of 50 points of study at 300-level.

Compulsory: 25 points selected from one of the following subject pairs:

- # 654-302 and 654-312
- # 654-304 and 516-302
- # 654-305 and 654-315
- # 654-309 and 654-313

Plus 25 points selected from any of the above subjects and/or 654-306, 654-307, 654-308.

Subject	Study Period Commencement:	Credit Points:
654-302 Experimental Marine Ecology	Summer	12.50

654-312 Marine Ecology	Semester 2	12.50
654-304 Reproduction	Semester 2	12.50
516-302 Developmental Biology	Semester 2	12.50
654-305 Experimental Animal Behaviour	Semester 1	12.50
654-315 Animal Behaviour	Semester 1	12.50
654-309 Field Biology of Australian Wildlife	Semester 2	12.50
654-313 Ecology in Changing Environments	Semester 1	12.50
654-306 Marine Zoology	Summer	12.50
654-307 Evolution and the Human Condition	Semester 1	12.50
654-308 Conservation Biology	Semester 2	12.50

All students in the BA/BSc are expected to complete an arts major.

The number of subjects required to be successfully undertaken in order to achieve an arts major varies from discipline to discipline. For more detailed information about the specific structure of an arts major please consult the 105aa arts degree course entry in this handbook.

For the arts component of this degree students must undertake 225 points of study from arts-approved study areas comprising:

- # no more than 50 points from first year arts (usually 4 subjects);
- # 75 points from second year arts (usually six subjects);
- # 100 points from third year arts.

No more than 162.5 points may be taken in any one area of study: a maximum of 25 points at first year level and 125 points at second/ third year level.

All arts subjects undertaken in this BA/BSc must be from the following arts-approved study areas (see the individual area of study entry for full details):

- * all language subjects
- * American studies
- * Ancient, Medieval and Early Modern Studies (some non-arts approved subjects included)
- * Anthropology
- * Art History
- * Asian Studies (some non-arts approved subjects included)
- * Australian Indigenous Studies (some non-arts approved subjects included)
- * Australian Studies
- * Cinema Studies
- * Classical studies and Archaeology
- * Communication Skills
- * Computer Applications in the Social Sciences and Humanities
- * Creative Writing
- * Criminology
- * Cultural Studies
- * Development Studies (some non-art approved subjects included)
- * English Literary Studies
- * English as a Second Language
- * English Language Studies
- * Environmental Studies (some non-arts approved subjects included)
- * European Studies
- * Gender Studies
- * Geography
- * Hebrew and Jewish Studies
- * History
- * History and Philosophy of Science
- * International Studies
- * Islamic Studies
- * Linguistics and Applied Linguistics
- * Philosophy
- * Planning and Design

	<ul style="list-style-type: none"> * Political Science * Psychology * Social Theory * Socio-legal Studies * Sociology * Theatre Studies
Entry Requirements:	<p>There is no first year intake into this course in 2008.</p> <p>For enquiries about admission requirements for later year entry into this program, please contact the Faculty of Science Office.</p>
Core Participation Requirements:	<p>It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact upon their active and safe participation in a subject are encouraged to discuss this with the relevant subject coordinator and the Disability Liaison Unit.</p>
Further Study:	<p>Further study into an Honours program is an option available for graduates of the Bachelor of Science/Bachelor of Arts through the Bachelor of Science (Degree with Honours) course and the Bachelor of Arts (Degree with Honours) course.</p>
Graduate Attributes:	<p>Graduates in arts/science are independent and creative thinkers, and are able to approach scientific or social issues creatively. They are used to formulating hypotheses which can be tested for validity. They can extrapolate from the known to the unknown and are comfortable working with analogues rather than needing to deal with literal situations. Studies in the humanities and social sciences strengthen students' understanding of the need to question and clarify issues surrounding a particular situation before developing a response. By suspending judgement and listening to other points of view, they are able to build on the ideas of others enabling their strong critical analysis skills. These studies also provide graduates with excellent written and oral communication skills. The science disciplines also value clear reporting. Consequently, the arts/science graduate has developed skills of efficient and effective communication of ideas and results, whether in the accepted modes of scientific report writing or through more informal oral presentations. Graduates recognise the need to present information and ideas in an effective written form that is appropriate to the purpose and the reader. Having undertaken laboratory and tutorial classes, arts/science graduates are adept at activity planning as well as the application of theory to practice. Some students will have found collaborative learning an efficient tool, while others will find their practical work enhanced by effective teamwork. The need to manage the multiplicity of tasks (lectures, laboratory and assignment work) means that arts/science graduates are aware of the need to structure and manage time effectively and efficiently, to retain balance and to prioritise their activities. They are able to juggle several tasks simultaneously, take responsibility for their own work, independently or within a group, and to plan their schedule appropriately. The breadth of the Science @ Melbourne program means that arts/science graduates will have been exposed, directly or indirectly, to thoughts and ideas from a number of bodies of knowledge. These graduates are aware of the breadth and depth of knowledge in areas beyond their specific areas of specialisation.</p>
Generic Skills:	<p>From their exposure to a range of quantitative and qualitative disciplines, Bachelor of Arts/ Bachelor of Science graduates have strong cognitive, social and communication skills. In particular they are able to:</p> <ul style="list-style-type: none"> # synthesise and evaluate information from a range of sources and add new ideas to their existing knowledge; # observe, record and evaluate data or evidence appropriately; # make effective use of information to identify and solve problems; # synthesise and integrate disparate elements into a meaningful whole; # express ideas, opinions and judgements and present them effectively in written or oral format that is appropriate to the audience; # question, reflect and clarify; # explain and defend their position on an issue; and # work effectively in group discussions.