

# THE UNIVERSITY OF QUEENSLAND

## Bachelor of Science (Pre-medicine Study Plans)

### Program information

### General study planner

Pre-medicine Study Plans are also available for the **Bachelor of Biomedical Science** and the **Bachelor of Advanced Science (Honours)**

The Bachelor of Science provides close to an infinite array of possible study plans that also allow students to prepare appropriately for subsequent study in the MD program. The study plans below provide some examples to illustrate the diversity of the possible study plans.

- (a) Majors in Biochemistry & Molecular Biology, Biomedical Science (single or extended), Genetics or Microbiology involve primary study in areas that are relevant to Medicine, and can readily meet the recommended prior areas of study for the UQ MD program, including 2<sup>nd</sup> level Anatomy, Biochemistry and Physiology. In addition, it is possible to include elective courses in a broad range of areas that are also relevant to subsequent MD studies, such as Psychology, Sociology, Nutrition, Exercise Science, etc., as illustrated by the examples below.
- (b) Majors in other areas of Science can also be undertaken, along with 1<sup>st</sup> and 2<sup>nd</sup> level courses in biology and chemistry to cover the recommended prior study areas.
- (c) Students have the option, if they wish, to undertake undergraduate research experiences during the Bachelor of Science, by including one or two research courses in their program. As shown in Plan 4 below, a research project course may be completed in the summer semester (in place of another course from one of the semesters), typically between Years 2 and 3, and this may be supported by a summer scholarship.

**Please note:** these plans are a suggestion only, and there are many other course progressions and majors that can provide appropriate background for entry to the MD. If you need further assistance or would like to speak to an academic advisor, please contact the [Science Student Enquiries Office](#).

**From 2022, BIOM2011 and BIOM2012 will be compulsory prerequisites for entry to the MD.** If you intend to apply for entry to the MD in or after 2022, you must complete these courses.

### PLAN 1: Bachelor of Science – Major in Biochemistry & Molecular Biology

This plan allows students to meet the requirements of the major in Biochemistry & Molecular Biology (codes shown in red), and the recommended areas of prior study for the MD of 2<sup>nd</sup> level Biochemistry, Anatomy and Physiology. This plan also includes a 3<sup>rd</sup> level research project (SCIE3260), 2<sup>nd</sup> level Microbiology & Immunology, Cell Biology, Genetics and Pharmacology, and elective Psychology, Nutrition and Sociology.

	Semester 1		Semester 2	
Year One	BIOL1020	Genes, Cells & Evolution	BIOL1040	Cells to Organisms
	CHEM1100	Chemistry 1	CHEM1200	Chemistry 2
	SCIE1000	Theory & Practice in Science	PSYC1020	Introduction to Psychology: Physiological & Cognitive Psychology
	PHYS1171	Physical Basis of Biological Systems	STAT1201	Analysis of Scientific Data
Year Two	BIOC2000	Biochemistry & Molecular Biology	BIOL2202	Genetics
	BIOL2200	Cell Structure & Function	BIOM2012	Systems Physiology
	BIOM2020	Human Anatomy	BIOM2402	Principles of Pharmacology
	BIOM2011	Integrative Cell & Tissue	MICR2000	Microbiology & Immunology

		Biology		
Year Three	BIOC3000	Advanced Biochemistry & Molecular Biology	BIOC3006	Biochemistry of Metabolism in Health & Disease
	BIOL3004	Genomics & Bioinformatics	SCIE3260	Introduction to Research in Chemistry, Biochemistry & Microbiology (A)
	BIOL3006	Molecular Cell Biology	SOCY1030	Introduction to Health, Illness & Society
	NUTR2101	Nutrition Science	NUTR3201	Advanced Nutrition Science

### PLAN 2: Bachelor of Science – Extended Major in Biomedical Science

This plan allows students to meet the requirements of the extended major in Biomedical Science (codes shown in red), and the recommended areas of prior study for the MD of 2<sup>nd</sup> level Biochemistry, Anatomy and Physiology. This plan also includes 2<sup>nd</sup> level Microbiology & Immunology, Cell Biology, Genetics and Pharmacology, and elective Psychology and Public Health.

	Semester 1		Semester 2	
Year One	BIOL1020	Genes, Cells & Evolution	BIOL1040	Cells to Organisms
	CHEM1100	Chemistry 1	CHEM1200	Chemistry 2
	SCIE1000	Theory & Practice in Science	PSYC1020	Introduction to Psychology: Physiological & Cognitive Psychology
	PHYS1171	Physical Basis of Biological Systems	STAT1201	Analysis of Scientific Data
Year Two	BIOC2000	Biochemistry & Molecular Biology	BIOL2202	Genetics
	BIOL2200	Cell Structure & Function	BIOM2012	Systems Physiology
	BIOM2011	Integrative Cell & Tissue Biology	BIOM2402	Principles of Pharmacology
	BIOM2020	Human Anatomy	MICR2000	Microbiology & Immunology
Year Three	BIOM3014	Molecular & Cellular Physiology	BIOM3015	Integrative Physiology & Pathophysiology
	BIOM3401	Systems Pharmacology	BIOM3200	Biomedical Science
	BIOM3002	Human Biomedical Anatomy	NEUR3002	The Integrated Brain
	PUBH1102	Introduction to Public Health	PSYC1030	Introduction to Psychology: Developmental, Social & Clinical Psychology

### PLAN 3: Bachelor of Science – Majors in Biomedical Science and Public Health

This plan allows students to meet the requirements of majors in Biomedical Science (codes shown in red) and Public Health (shown in blue), as well as covering the recommended areas of prior study for the MD of 2<sup>nd</sup> level Biochemistry, Anatomy and Physiology.

	Semester 1		Semester 2	
Year One	BIOL1020	Genes, Cells & Evolution	BIOL1040	Cells to Organisms
	CHEM1100	Chemistry 1	INDH1005	Aboriginal & Torres Strait Islander Health
	SCIE1000	Theory & Practice in Science	PUBH1103	Health Systems & Policy
	PUBH1102	Introduction to Public Health	STAT1201	Analysis of Scientific Data
Year Two	PUBH2008	Major Diseases & Their Control	BIOM2012	Systems Physiology
	BIOL2200	Cell Structure & Function	NUTR2003	Nutrition in the Lifespan
	BIOM2011	Integrative Cell & Tissue Biology	BIOC3006	Biochemistry of Metabolism in Health & Disease
	BIOC2000	Biochemistry & Molecular Biology	PUBH2004	Understanding Health Behaviours
Year Three	PUBH3005	Influencing Health Behaviours	HLTH3007	Research Project

	BIOM3020	Integrated Endocrinology	BIOM3200	Biomedical Science
	PUBH3009	Environmental Health	BIOM3015	Integrative Physiology & Pathophysiology
	BIOM2020	Human Anatomy	PUBH3010	Global Health & Infectious Disease

### PLAN 4: Bachelor of Science – Extended Major in Biomedical Science and Major in Public Health

This plan allows students to meet the requirements of an extended major in Biomedical Science (codes shown in red) and a major in Public Health (shown in blue), as well as covering the recommended areas of prior study for the MD of 2<sup>nd</sup> level Biochemistry, Anatomy and Physiology. Permission will be needed to enrol in #4 of additional study to complete both majors. Prior Senior Chemistry and Physics are assumed + BIOL1020 credit.

	Semester 1		Semester 2	
Year One	BIOL1040	Cells to Organisms	NUTR2003	Nutrition in the Lifespan
	CHEM1100	Chemistry 1	INDH1005	Aboriginal & Torres Strait Islander Health
	SCIE1000	Theory & Practice in Science	PUBH1103	Health Systems & Policy
	PUBH1102	Introduction to Public Health	BIOL2202	Genetics
Sum Sem			STAT1201	Analysis of Scientific Data
Year Two	PUBH2008	Major Diseases & Their Control	ANAT3022	Functional Neuroanatomy
	BIOL2200	Cell Structure & Function	BIOC3003	Human Molecular Genetics & Disease
	BIOM2011	Integrative Cell & Tissue Biology	BIOM2012	Systems Physiology
	BIOM2020	Human Anatomy	PUBH2004	Understanding Health Behaviours
Summer Semester			SCIE3221	Biomedical Science Research Project
Year Three	BIOM3002	Human Biomedical Anatomy	DEVB3001	Developmental Neurobiology
	PUBH3002	Health Policy in Practice	BIOM3200	Biomedical Science
	PUBH3005	Influencing Health Behaviours	HLTH3007	Research Project
	BIOC2000	Biochemistry & Molecular Biology	PUBH3010	Global Health & Infectious Disease

### PLAN 5: Bachelor of Science – Major in Genetics

This plan allows students to meet the requirements of the major in Genetics (codes shown in red), and the recommended areas of prior study for the MD of 2<sup>nd</sup> level Biochemistry, Anatomy and Physiology. This plan also includes some advanced Physiology and elective Sociology.

	Semester 1		Semester 2	
Year One	BIOL1020	Genes, Cells & Evolution	CHEM1200	Chemistry 2
	BIOL1030	Global Challenges in Biology	BIOL1040	Cells to Organisms
	CHEM1100	Chemistry 1	PHYS1171	Physical Basis of Biological Systems
	SCIE1000	Theory & Practice in Science	STAT1201	Analysis of Scientific Data
Year Two	BIOL2006	Biostatistics & Experimental Design	BIOL2201	Evolution
	BIOC2000	Biochemistry & Molecular Biology	BIOL2202	Genetics
	BIOL2200	Cell Structure & Function	BIOM2012	Systems Physiology
	BIOM2011	Integrative Cell & Tissues Biology	BIOM2208	Differentiation & Development
Year Three	BIOL3390	Genome Evolution	BIOL3350	Genetics & Evolution of Complex Traits
	BIOL3004	Genomics & Bioinformatics	BIOM3015	Integrative Physiology &

				Pathophysiology
	DEVB3002	Stem Cells & Regenerative Medicine	BIOC3003	Human Molecular Genetics and Disease
	BIOM2020	Human Anatomy	SOCY1030	Introduction to Health, Illness & Society

### PLAN 6: Bachelor of Science – Major in Microbiology

This plan allows students to meet the requirements of the major in Microbiology (codes shown in red), and the recommended areas of prior study for the MD of 2<sup>nd</sup> level Biochemistry, Anatomy and Physiology. This plan also includes 2<sup>nd</sup> level Cell Biology and Genetics, 3<sup>rd</sup> level Anatomy and elective Psychology, Sociology and eHealthcare.

	Semester 1		Semester 2	
Year One	BIOL1020	Genes, Cells & Evolution	BIOL1040	Cells to Organisms
	CHEM1100	Chemistry 1	CHEM1200	Chemistry 2
	SCIE1000	Theory & Practice in Science	PSYC1020	Introduction to Psychology: Physiological & Cognitive Psychology
	BIOL1030	Global Challenges in Biology	STAT1201	Analysis of Scientific Data
Year Two	BIOC2000	Biochemistry & Molecular Biology	MICR2000	Microbiology & Immunology
	BIOL2200	Cell Structure & Function	BIOL2202	Genetics
	BIOM2011	Integrative Cell & Tissue Biology	BIOM2012	Systems Physiology
	BIOM2020	Human Anatomy	SOCY1030	Introduction to Health, Illness & Society
Year Three	BIOL3009	Arthropods & Human Health	MICR3001	Microbes & Human Health
	BIOL3003	Advanced Immunology	MICR3004	Microbial Genetics
	MICR3002	Virology	ANAT3022	Functional Neuroanatomy
	PHYS1171	Physical Basis of Biological Systems	HLTH2000	e-Healthcare

### PLAN 7: Bachelor of Science – Majors in Marine Science and Biomedical Science

This plan allows students to meet the requirements of two majors – Biomedical Science (codes shown in red) and also a major that is unrelated to the biomedical sciences, e.g. Marine Science (codes shown in blue). This plan also meets the recommended areas of prior study for the MD of 2<sup>nd</sup> level Biochemistry, Anatomy and Physiology.

	Semester 1		Semester 2	
Year One	BIOL1020	Genes, Cells & Evolution	BIOL1040	Cells to Organisms
	CHEM1100	Chemistry 1	CHEM1200	Chemistry 2
	SCIE1000	Theory & Practice in Science	ERTH1000	Planet Earth: The Big Picture
	BIOL1030	Global Challenges in Biology	STAT1201	Analysis of Scientific Data
Year Two	MARS2014	Marine Science	SCIE3220	Biomedical Science Research Skills (preferably Summer Semester)
	BIOL2200	Cell Structure & Function	BIOL2204	Zoology
	BIOM2011	Integrative Cell & Tissue Biology	BIOM2012	Systems Physiology
	BIOL2006	Biostatistics & Experimental Design	BIOM2402	Principles of Pharmacology
Year Three	MARS3012	Physical-Biological Oceanography	ANAT3022	Functional Neuroanatomy
	BIOM2020	Human Anatomy	BIOM3015	Integrative Physiology & Pathophysiology
	BIOL3211	Marine Invertebrates	BIOL3023	Tropical Marine Ecosystems
	BIOL3340	Fish, Fisheries & Aquaculture	BIOM3200	Biomedical Science

## PLAN 8: Bachelor of Science – Major in Mathematics (with significant Anatomy component)

This plan allows students to meet the requirements of a major that is unrelated to the biomedical sciences that underpin Medicine – taking the example of a major in Mathematics (codes shown in red). This plan also meets the recommended areas of prior study for the MD of 2<sup>nd</sup> level Biochemistry, Anatomy and Physiology and their 1<sup>st</sup> level prerequisites, as well as including 3<sup>rd</sup> level Anatomy. The plan assumes that the student has completed pre-University studies in Mathematics C, Chemistry and Physics.

	Semester 1		Semester 2	
Year One	MATH1051	Calculus & Linear Algebra I	MATH1052	Multivariate Calculus & Ordinary Differential Equations
	MATH1061	Discrete Mathematics	CHEM1100	Chemistry 1
	SCIE1000	Theory & Practice in Science	BIOL1040	Cells to Organisms
	BIOL1020	Cells, Genes & Evolution	STAT1201	Analysis of Scientific Data
Year Two	MATH2001	Advanced Calculus & Linear Algebra	MATH2100	Applied Mathematical Analysis
	MATH2400	Mathematical Analysis	BIOL2202	Genetics
	BIOM2011	Integrative Cell & Tissues Biology	BIOM2012	Systems Physiology
	BIOM2020	Human Anatomy	CHEM1200	Chemistry 2
Year Three	MATH3401	Complex Analysis	MATH3403	Partial Differential Equations
	MATH3402	Functional Analysis	MATH3404	Optimisation Theory
	BIOM3002	Human Biomedical Anatomy	BIOM3003	Functional Musculoskeletal Anatomy
	BIOC2000	Biochemistry & Molecular Biology	PSYC1020	Introduction to Psychology: Physiological & Cognitive Psychology