BACHELOR OF MEDICAL SCIENCES

The Bachelor of Medical Sciences is a 3-year full-time or 5-year part-time degree. Students enrolling in the BMedScs degree will be planning for future careers in medical research, medical applications in diagnostics or paramedical professions, or to undertake graduate degrees in medicine. The degree is offered in three strands - Biomedical, Medical Chemistry and the Psychomedical strand.

All students enrolled in the program study a common core at 100-level (or first-year of full-time study) covering Biology, Chemistry, Psychology, Mathematics, Physics and Statistics. You will be required to choose a study pattern number corresponding to one of the strands when you enrol. However, transfer between the strands at the end of first year is possible because of the common core. A wide choice of subject areas can be studied within each strand over the next 2 years. Specific career interests determine subject choices for the final year of study, which in turn guide students in their selection of subjects in the second year. A total of 72 credit points (cp) of Medical Science units is required to complete the degree.

Special BMedScs advisers assist students throughout their programs, while general advice is available from the Curriculum Director.

Assumed Knowledge for Enrolment

Entry to the BMedScs requires a higher UAI than the Bachelor of Science. HSC Chemistry and Mathematics are assumed knowledge, although introductory courses are available for students without this background.

Honours Year

For students who have reached a level of excellence during their undergraduate studies, a fourth Honours year is available. This entails research studies in a specific area of their selected strand. The diversity of research expertise in the member Departments will provide students with a choice of research to suit their particular interest.

Postgraduate Study and Research

The BMedScs degree provides a sound basis for future studies for students applying to enter postgraduate medical programs. The opportunity to compete for Australian Postgraduate Award Scholarships is available for those wishing to proceed to a PhD.

Contact:

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Current as at April 2008

FIRST YEAR

The first-year is common for all three strands and comprises 27 credit points (cp). However, as 27 credit points is a demanding program of study for the first year at university, many students choose to defer one unit until the second year of study. Each unit of study is 3 cp unless otherwise stated.

FIRST HALF YEAR

BIOL114 Evolution & Biodiversity

Commences with ideas on the origin of life and discusses the inter-relationships of major life forms. The ways in which biodiversity may respond to a rapidly changing environment are explored.

CBMS101 Introductory Chemistry A

Covers core principles of general and physical chemistry. Includes basic principles of chemical reactions, bonding and molecular structure. Concepts are illustrated with examples of economic, environmental, medical and biological importance.

PSY104 Introduction to Psychology I

Focuses on physiological bases of behaviour, learning, nature of personality and psychopathology, and measurement and assessment of individual differences.

PHYS149 Physics 149

Elements of mechanics and electricity; waves; optics; heat and thermodynamics.

STAT170 Introductory Statistics

Introduction to statistical concepts and techniques for data analysis.

OR

STAT171 Statistical Data Analysis

Introduction to modern statistical principles and practice with special emphasis on data analytical techniques.

*CBMS112 Advanced Chemistry 1A

Extends principles introduced in CBMS101. This 1 cp unit is highly recommended for students in the medical chemistry strand and/or taking 300-level CBMS units.

SECOND HALF YEAR

BIOL115 The Thread of Life

Deals with the molecular and cellular processes on which life is based. DNA expression to form structures and biochemical mechanisms is explored. Gives an overview of how cells divide to form new individuals and multicellular organisms.

CBMS103 Introductory Chemistry B

Structure, isomerism, functional group reactions, types and mechanisms of reactions of organic compounds. Includes basic chemical properties of important biomolecules.

PSY105 Introduction to Psychology II

Examines development of the individual across the life-span - reactions to sensory stimuli, perception, learning, memory, reason, communication and interaction in social situations.

MATH135 Mathematics IA

Arithmetic and geometry of complex numbers. Analytic geometry. Matrices and determinants. Systems of linear equations. Vectors. Functions, limits and continuity. Differentiation and classification of stationary points. Numerical integration.

OR

MATH130 Mathematics IE

Appropriate for students intending to pursue the Psychomedical strand and students in the Biology strand who do not wish to study CBMS207. Other students should take MATH135.

SECOND YEAR

From Second Year, paths of study diverge between the Biomedical, Medical Chemistry and Psychomedical strands.

Students should select units of study at 200-level that are the appropriate prerequisites for those they wish to study at 300-level. The 300-level units should be consulted in planning the program at Second Year. You may also choose units from other strands.

BIOMEDICAL STRAND

A 200-level program that allows for sufficient choice at 300-level in Third Year can be constructed from the following units:

- **CBMS223** Biochemistry & Molecular Biology I (core unit)
- **BIOL206** Genetics
- **BIOL246** Human Physiology
- **CBMS204** Organic Synthesis
- **CBMS224** Biochemistry & Molecular Biology II (core unit)
- **BIOL208** Animal Structure & Function
- **BIOL235** Biostatistics
- **CBMS215** Microbiology
- **PSY236** Biopsychology & Learning

MEDICAL CHEMISTRY STRAND

Core Units:

- **CBMS204** Organic Synthesis
- **CBMS207** Physical Chemistry
- **CBMS223** Biochemistry & Molecular Biology I
- **CBMS208** Chemical Analysis I
- **CBMS224** Biochemistry &Molecular Biology II

Options, one of

- **BIOL235** Biostatistics
- **CBMS234** History & Philosophy of the Molecular Sciences
- **PSY222** Design & Statistics (4cps)

PSYCHOMEDICAL STRAND

First Half-Year Core

- **PSY234** Social & Personality Psychology
- **PSY237** Cognition & Perception
- **BIOL206** Genetics
- **CBMS204** Organic Synthesis

Second Half-Year Core

- **PSY236** Biopsychology & Learning

Recommended Units:

- **PSY222** Design & Statistics II (4 cp)
- **PSY224** Psychology, Health & Wellbeing
- **PSY235** Developmental Psychology
- **BIOL208** Animal Structure & Function

Students planning to do Honours must complete PSY235 and PSY222

THIRD YEAR

BIOMEDICAL STRAND

A minimum of 12 cp must be taken from the following core 300-level units:

- **BIOL345** Human Genetics Theory
- **BIOL357** Physiology I
- **CBMS375** Cell & Developmental Biology (4 cp)
- **CBMS352** Molecular Biology
- **BIOL334** Conservation & Evol Genetics
- **BIOL367** Immunobiology
- **BIOL358** Physiology II
- **CBMS309** Biochemistry
- **BIOL346** Bioscience Ethics & Reproduction

An additional 9 cp must be taken from any 300 level Medical Science units. Recommended units include those listed above, as well as:

- **BIOL316** Invertebrates: Evolution, Behaviour & Diversity
- **BIOL369** Vertebrate Evolution
- **CBMS305** Medical Microbiology (4 cp)
- **CBMS342** Medicinal Chemistry (4 cp) ^
- **STAT395** Biostatistics & Epidemiology
- **BBE300** Animal Behaviour (4 cp)
- **PSY321** Neuropsychology (4 cp)

MEDICAL CHEMISTRY STRAND

Core Unit: CBMS342 Medicinal Chemistry (4 cp)[#] plus a minimum of 7cp from:

- **CBMS325** Chemical Analysis II (4 cp)
- **CBMS340** Organic & Biological Chemistry A (4 cp)*
- **CBMS341** Organic & Biological Chemistry B (4 cp)*
- **CBMS332** Protein Discovery & Analysis
- **CBMS329** Topics in Physical Chemistry (4 cp)*

* *Offered in alternate years*

An additional 11 cp must be taken from any 300 level Medical Science units. Recommended units include those listed above as well as:

- **CBMS305** Medical Microbiology (4 cp)
- **CBMS352** Molecular Biology
- **CBMS375** Cell & Developmental Biology (4cp)
- **CBMS309** Biochemistry
- **PSY321** Neuropsychology

PSYCHOMEDICAL STRAND

A minimum of 12 cp must be taken from the following core 300-level units:

- **PSY306** Psychopathology (4 cp)
- **PSY325** Associative Learning (4 cp)#
- **PSY303** Cognitive Processes II (4cp)
- **PSY321** Neuropsychology (4 cp)

A additional 8 cp must be taken from the units listed above or:

- **BIOL345** Human Genetics Theory
- **BIOL357** Physiology I
- **BBE300** Animal Behaviour (4 cp)
- **BIOL346** Bioscience Ethics & Reproduction
- **BIOL358** Physiology II
- **CBMS342** Medicinal Chemistry (4 cp) #

Students planning to do Honours must complete PSY331, PSY332 and PSY340.
Note PSY340 is NCCW with PSY232, PSY240 and PSY241

^ Not offered 2008
 # Offered in 2009