

Faculty of Science and Mathematics

The Faculty of Science and Mathematics offers a three-year Bachelor of Science degree with a range of eight majors and, in conjunction with other Faculties, Bachelor of Science/Bachelor of Business and Bachelor of Science/Bachelor of Teaching (listed in the Faculty of Education section). The Faculty has articulation arrangements in place with the University of Newcastle and Charles Sturt University. Students who complete a Bachelor of Science at Avondale may transfer, with advanced standing, to the Bachelor of Herbal Therapies at the University of Newcastle). Students who complete a Bachelor of Science at Avondale may transfer, with advanced standing, to the Bachelor of Medical Science (Pathology) at Charles Sturt University and complete the degree with one further year of study.

The Bachelor of Science degree prepares graduates for careers in a wide range of public or private organisations, including science laboratories, industrial, health and commercial organisations. The degree also provides a foundation for postgraduate study. The course is designed to enhance students' knowledge of science in the contemporary world, to provide opportunities for critical thinking and problem-solving in a context of Christian values, and to give laboratory/field experiences that develop appreciation for the joint role of theory and experimentation in furthering knowledge of the world around us.

Research Centre

Centre for Interdisciplinary Studies in Science

Head of Centre:

Dr Kevin de Berg
BSc Qld, DipEd Qld, BEd Qld, PhD Qld, MAppSc Curtin,
MRACI, Cchem

Staff

Dean

Lynden J Rogers
BSc(Hons), MSc, PhD, MAIP

Senior Lecturers

Terence J Annable
SRN Lond, DCR(T) Lond, BSc(Hons) Lond, CEd(Tech) Lond,
MSc UNE, PhD Sydney, MAPPS

Applied Biology

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BSc Qld, DipEd Qld, BEd Qld, PhD Qld, MAppSc Curtin,
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Chemistry

Robert J Drewer
BSc Adel, BSc(Hons) Adel, PhD Adel

Chemistry

Wilfred J Pinchin
BA Pacific Union Coll, BSc(Hons) Lond, PhD Ncle, MAustMS,
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Mathematics

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BSc(Hons) Lond, MSc Ncle (NSW), PhD Ncle, MAIP

Physics

Ewan Ward
BSc(Hons) NSW, PhD NSW

Biomedical Science

Lecturers

Anton R Selvaratnam
BSc (Hons) Jaffna, GradDipTch Massey, MSc Massey
Mathematics

Carmen D Booyens
BSc Avondale, BTch Avondale
Biology, Chemistry

Bachelor of Science

Course code:

Course coordinator: Dr Kevin de Berg

The Bachelor of Science degree prepares graduates for careers in a wide range of public or private organisations, including science laboratories, industrial, health and commercial organisations. The degree also provides a foundation for postgraduate study. The course is designed to enhance students' knowledge of science in the contemporary world, to provide opportunities for critical thinking and problem-solving in a context of Christian values, and to give laboratory/field experiences that develop appreciation for the joint role of theory and experimentation in furthering knowledge of the world around us.

Duration

Three years full-time or equivalent part-time

Credit points

144 credit points

Mode of delivery

On campus for the majority of subjects
BMS242.2 Human Cytogenetics studied by distance mode

Abbreviations of course titles

BSc

Accreditation

The degree is accredited by the NSW Department of Education and Training.

Entry requirements

The general entry requirements for Avondale degree courses are stated in the Academic Policies section of the Handbook. These requirements apply to all the majors in the BSc with the following additional requirements for specific majors/minors:

Biological Science

- 1 HSC (or equivalent) Chemistry, *or*
- 2 An HSC (or equivalent) Science subject and Chemistry Bridging Course, *or*
- 3 In the absence of HSC (or equivalent) Biology, a UAI of 70 and Chemistry Bridging Course or at least Year 11 Chemistry, *or*
- 4 Recommendation of the Faculty of Science and Mathematics.
- 5 HSC (or equivalent) Biology is recommended.

Chemistry

- 1 HSC (or equivalent) Chemistry, *or* recommendation of the Faculty of Science and Mathematics, *and*
- 2 HSC (or equivalent) Mathematics, *or* recommendation of the Faculty of Science and Mathematics.

Food and Nutrition

- 1 HSC (or equivalent) Chemistry, *or*
- 2 An HSC (or equivalent) Science subject and Chemistry Bridging Course, *or*
- 3 In the absence of HSC (or equivalent) Biology, a UAI of 70 and Chemistry Bridging Course or at least Year 11 Chemistry, *or*
- 4 Recommendation of the Faculty of Science and Mathematics.

HSC (or equivalent) Biology is recommended.

Information Technology

HSC (or equivalent) Mathematics is recommended.

Mathematics

Recent HSC (or equivalent) Mathematics Extension 1, or recommendation of the Faculty of Science and Mathematics.

Physics

- 1 HSC (or equivalent) Physics, or recommendation of the Faculty of Science and Mathematics and
- 2 HSC (or equivalent) Mathematics Extension 1, or recommendation of the Faculty of Science and Mathematics.

Course structure

The BSc degree consists of a minimum of 24 x 6-credit point subjects (144 credit points) over six semesters. The course is comprised of three Christian Studies subjects, and at least 21 subjects (126 credit points) in a combination of majors, minors and electives.

The BSc *major* is an approved sequence in a specific Science discipline or multi-discipline area comprised of at least eight subjects (48 credit points) including not more than two subjects (12 credit points) at 100-level, and at least three subjects (18 credit points) at 300-level.

The BSc *minor* is an approved sequence in a different Science discipline area or multi-discipline area to that chosen for the major comprised of at least four subjects (24 credit points) including not more than two subjects (12 credit points) at 100-level, and at least two subjects (12 credit points) at 200-level/300-level.

Majors and minors must be selected from different Science disciplines.

Electives are undergraduate subjects which may be chosen from the areas listed for major and minor studies in the BSc as well as other approved undergraduate subjects.

All subjects are worth 6 credit points (unless otherwise specified) with a notional semester workload of 150 hours, averaging 10–12 hours per week (including contact hours).

Christian Studies subjects

| | |
|-------|---|
| CR143 | Christian Studies I |
| CR243 | Christian Studies II*# |
| SC343 | Christian Studies III—Scientific Perspectives in the Modern World |

*SDA students may select the following alternative to CR243:
CY165 SDA History and Ministry of Ellen White

#The following alternatives to CR243 are available to students of other faiths:

| | |
|-------|--|
| NT160 | Gospels A |
| NT161 | Gospels B |
| EN264 | Literature and Religion (<i>odd years</i>) |
| TH362 | Comparative Religions |

All students may substitute an approved subject from the Faculty of Theology for either CR143 or CR243.

Required subjects

There are three required subjects in the biomedical major articulating with the BMedSc (Pathology) at Charles Sturt University. These are MA164.1 General Mathematics, MA163.2 Introduction to Statistics and PH163.1 General Physics. One subject, BMS242 Human Cytogenetics must also be taken by distance education from Charles Sturt University.

Majors

Biological Science—Environmental Strand
 Biological Science—Biomedical Strand
 Chemistry
 Food and Nutrition (requires a Biological Science minor—see Structure)
 Geography
 Information Technology
 Mathematics
 Physics

Minors

Biological Chemistry
 Biological Science—Environmental Strand
 Biological Science—Biomedical Strand
 Chemistry
 Food and Nutrition (requires a Biological Science minor—see Structure)
 Geography
 Information Technology
 Mathematics
 Physics

At least one science minor must be undertaken. Other minors may be available from other degrees, subject to timetable constraints and with the approvals of the Dean of

the Faculty of Science and the Dean of the Faculty offering the proposed minor.

Major seminar subjects

The offering of a major seminar/independent topic in the third year is normally subject to the student having satisfactorily completed at least three 200 or 300 level subjects in the major area. These subjects are normally 6 credit points; but may be offered as double sequence across two semesters (worth 12 credit points) if the project undertaken is large enough. Major seminars are also subject to staff availability and are offered at the discretion of the Dean of Faculty.

| | |
|-----------|---|
| BI390.1/2 | Seminar in Biology |
| CH390.1/2 | Seminar in Chemistry |
| GE395.1/2 | Independent Topic in Human Geography |
| GP395.1/2 | Independent Topic in Physical Geography |
| MA390.1/2 | Seminar in Mathematics |
| PH390.1/2 | Seminar in Physics |

Electives

Electives may be chosen from the areas listed for major and minor studies in the BSc as well as other degree-level subjects. Science electives can be chosen from Biological subjects (coded BI), Biological Chemistry (coded BI and CH), Chemistry (coded CH), Food and Nutrition (coded HP and DT), Geography (coded GE and GP), Information Technology (coded CO), Mathematics (coded MA), Physics (coded PH), and other science subjects (coded SC). Students anticipating postgraduate studies in the area of their major discipline are strongly advised to take the electives available in their major. No more than 12 credit points of electives outside the sciences (science subjects are coded BI, CH, CO, DT, GE, GP, HP, MA, PH, SC) and no more than 24 credit points of electives at 100 level are allowed. Only certain HP and DT subjects will be allowed as electives. Electives may also be restricted if prerequisites are required for the major/minor sequences. The Dean of the Faculty of Science and Mathematics is to be consulted regarding the choice of electives, particularly those outside the major/minor sequences, as not all subjects may be taken.

Articulations with other institutions

Food and Nutrition Major—The University of Newcastle subjects
 A memorandum of understanding exists between the Faculty of Science and Mathematics (Avondale College) and the School of Science and Technology (The University of Newcastle Central—Coast Campus). Avondale College students who have successfully completed the science subjects across the first four semesters shown in the Food and Nutrition Major/Biological Science Minor Structure will be eligible to enrol in The University of Newcastle subjects shown in semester 5 and 6 of the same Structure. The award (after a minimum of three years) is the Avondale College Bachelor of Science (Food and Nutrition).

Articulation with The University of Newcastle Bachelor of Herbal Therapies

A memorandum of understanding exists between the Faculty of Science and Mathematics (Avondale College) and the School of Science and Technology (The University of Newcastle Central—Coast Campus). Avondale College Bachelor of Science (Biological Sciences—Biomedical major) graduates who have successfully completed the University of Newcastle subjects CATH1010 and CATH1020 in semesters five and six of the Avondale degree are eligible to enrol in The University of Newcastle Central—Coast Campus Bachelor of Herbal Therapies and complete this degree after an additional year of full-time study (see Structure).

Articulation with Charles Sturt University Bachelor of Medical Science (Pathology)

A memorandum of understanding exists between the Faculty of Science and Mathematics (Avondale College) and the School of Biomedical Sciences (Charles Sturt University). Avondale College Bachelor of Science (Biological Sciences—Biomedical major and biological chemistry minor) graduates who have successfully completed the Charles Sturt University distance subject BMS242 while at Avondale are eligible to enrol in the Charles Sturt University Bachelor of Medical Science (Pathology) and complete this degree after an additional year of full-time study (see Structure).

Major/minor subject sequences**Biological Science****Biological Science—Environmental major**

| | |
|---------|--------------------------------|
| BI160.1 | Biology I |
| BI161.2 | Comparative Functional Biology |
| BI262.1 | Ecology |
| BI263.2 | Mammalogy |
| BI266.2 | Ecophysiology of Animals |
| BI362.2 | Plant Biology |
| BI368.2 | Marine Biology |
| GP383.1 | Biogeography |

NOTE: Advised electives with this major:

| | |
|---------|---------------------------------|
| SC360.1 | Environmental Values and Ethics |
| MA162.2 | Introduction to Statistics |

Biological Science—Environmental major electives

| | |
|-----------|---------------------------------------|
| BI261.1 | Biochemistry |
| BI367.1 | Applied Ecology (<i>even years</i>) |
| BI390.1/2 | Seminar in Biology |

Biological Science—Environmental minor

| | |
|---------|--------------------------------|
| BI160.1 | Biology I |
| BI161.2 | Comparative Functional Biology |
| BI262.1 | Ecology |

and one of

BI263.2 Mammalogy

or

BI266.2 Ecophysiology of Animals

Biological Science—Biomedical major

| | |
|---------|---|
| BI160.1 | Biology I |
| BI161.2 | Comparative Functional Biology |
| BI260.2 | General Human Physiology |
| BI261.1 | Biochemistry |
| BI264.1 | General Microbiology |
| BI360.2 | Investigative Biochemistry (<i>odd years</i>) |
| BI364.1 | Advanced Human Physiology |
| BI365.2 | Molecular Biology (<i>even years</i>) |

Biological Science—Biomedical major electives

| | |
|-----------|------------------------|
| BI265.2 | Pathological Processes |
| HP341.2 | Exercise Physiology |
| BI390.1/2 | Seminar in Biology |

Biological Science—Biomedical minor

| | |
|---------|--------------------------------|
| BI160.1 | Biology I |
| BI161.2 | Comparative Functional Biology |

and any two of:

| | |
|---------|--------------------------|
| BI260.2 | General Human Physiology |
| BI261.1 | Biochemistry |
| BI264.1 | General Microbiology |

Biological Chemistry minor

| | |
|---------|---|
| CH160.1 | Chemistry IA |
| CH161.2 | Chemistry IB |
| BI267.2 | Histotechniques (<i>odd years</i>) |
| BI268.2 | Clinical Biochemistry (<i>even years</i>) |

Chemistry**Chemistry major**

| | |
|---------|--|
| CH160.1 | Chemistry IA |
| CH161.2 | Chemistry IB |
| CH260.1 | Physical and Inorganic Chemistry IIA (<i>odd years</i>) |
| CH261.1 | Physical and Inorganic Chemistry IIB (<i>odd years</i>) |
| CH262.1 | Organic Chemistry IIA (<i>even years</i>) |
| CH360.2 | Physical and Inorganic Chemistry IIIA (<i>odd years</i>) |
| CH362.2 | Organic Chemistry IIIA (<i>even years</i>) |
| CH364.1 | Organic Chemistry IIIC (<i>even years</i>) |

Chemistry major electives

| | |
|-----------|--|
| CH361.2 | Physical and Inorganic Chemistry IIIB (<i>odd years</i>) |
| CH363.2 | Organic Chemistry IIIB (<i>even years</i>) |
| CH390.1/2 | Seminar in Chemistry |

Chemistry minor

| | |
|---------|--|
| CH160.1 | Chemistry IA |
| CH161.2 | Chemistry IB |
| CH260.1 | Physical and Inorganic Chemistry IIA (<i>odd years</i>) |
| CH262.1 | Physical and Inorganic Chemistry IIB (<i>even years</i>) |

Food and Nutrition

Food and Nutrition major

| | |
|------------|---|
| HP161.2 | Food, Nutrition and Health |
| DT261.1 | Food Production Systems |
| HP262.1 | Nutrition, Development and Performance |
| DT263.2 | Food Science |
| FSHN3010.1 | Food Processing and Quality Management* |
| DT364.1 | Design Project (Food Product Design) (<i>odd years</i>) |

or

| | |
|------------|---------------------------|
| FSHN3210.2 | Food Product Development* |
| HP363.2 | Health Promotion |

or

| | |
|---------|--------------------------|
| BI370.2 | Food Microbiology |
| SC361.2 | Food Industry Experience |

or

| | |
|----------|-----------------------|
| FSHN3080 | Professional Practice |
|----------|-----------------------|

Food and Nutrition electives (subjects from The University of Newcastle, timetable permitting):

| | |
|------------|-----------------------|
| FSHN3230.1 | Food Analysis |
| FSHN3100.2 | Research Methods |
| FSHN3200.2 | Applied Biotechnology |
| FSHN3420.2 | Food Packaging |

NOTES:

- 1 It is mandatory that a Food and Nutrition major be studied in association with an appropriate Biological Science minor. See the Structure.
- 2 Subjects asterisked (*) are offered from The University of Newcastle—Central Coast Campus. Students should consult with the Dean of the Faculty of Science and Mathematics in relation to any changes in the subjects offered by The University of Newcastle.

Food and Nutrition minor

| | |
|---------|--|
| HP161.2 | Food, Nutrition and Health |
| DT261.1 | Food Production Systems |
| HP262.1 | Nutrition, Development and Performance |

and one of:

| | |
|---------|---|
| DT263.2 | Food Science |
| HP363.2 | Health Promotion |
| DT364.1 | Design Project (Food Product Design) (<i>odd years</i>) |

NOTE: It is mandatory that a Food and Nutrition minor be studied in association with appropriate Biological Science subjects. See the Dean of the Faculty for details.

Geography

Geography major

| | |
|---------|------------------------------------|
| GE190.1 | Global Issues |
| GE180.2 | Environmental Issues |
| GP281.1 | Physical Geography A |
| GP282.2 | Physical Geography B |
| GE293.2 | Asia Pacific in the Global Economy |
| GP383.1 | Biogeography |
| GE391.1 | Development Geography |
| GE392.2 | Urban Places and Society |

Geography electives

| | |
|-----------|---|
| GE292.2 | Asian Fieldwork |
| GP384.2 | Geomorphology in the Arid Zone |
| GE395.1/2 | Independent Topic in Human Geography |
| GP395.1/2 | Independent Topic in Physical Geography |
| SC360.1 | Environmental Values and Ethics |

Geography minor

| | |
|---|----------------------|
| GE180.2 | Environmental Issues |
| GE190.1 | Global Issues |
| <i>and at least two Geography subjects at 200-level, or a vertical minor in Physical Geography of</i> | |
| GE180.2 | Environmental Issues |
| GP281.1 | Physical Geography A |
| GP282.2 | Physical Geography B |
| <i>and</i> | |
| GP383.1 | Biogeography |

Information Technology

Information Technology major

| | |
|---------|--------------------------------|
| CO168.2 | Introduction to Programming |
| CO292.1 | Application Programming |
| CO293.1 | Systems Analysis and Design I |
| CO298.1 | Advanced Programming |
| CO375.2 | Web Application Design |
| CO393.2 | Systems Analysis and Design II |
| CO394.1 | Database Management and Design |
| CO396.1 | Information Technology Project |

Required Information Technology elective

| | |
|---------|--|
| CO164.1 | Introduction to Information Management |
|---------|--|

Information Technology electives

| | |
|---------|---|
| CO290.2 | Emerging Trends in Information Technology |
| CO296.2 | Operating Systems and Data Communication |

Information Technology minor

| | |
|-----------------------------|---|
| CO168.2 | Introduction to Programming |
| CO292.1 | Application Programming |
| CO298.2 | Advanced Programming |
| <i>and at least one of:</i> | |
| CO290.2 | Emerging Trends in Information Technology |
| CO293.1 | Systems Analysis and Design |
| CO296.2 | Operating Systems and Data Communication |

Required Information Technology elective

| | |
|---------|--|
| CO164.1 | Introduction to Information Management |
|---------|--|

Mathematics

Mathematics major

| | |
|---------|----------------|
| MA160.1 | Mathematics IA |
| MA161.2 | Mathematics IB |
| MA260.1 | Calculus II |
| MA261.2 | Algebra II |

- MA262.1 Statistics II (*odd years*)
- MA361.1 Algebra III
- MA362.1 Mathematical Analysis (*even years*)
- MA363.2 Advanced Mathematical Methods

Mathematics electives

- MA263.2 Numerical Analysis (*even years*)
- MA360.2 Calculus III (*odd years*)
- MA390.1/2 Seminar in Mathematics

Mathematics minor

- MA160.1 Mathematics IA
- MA161.2 Mathematics IB
- MA260.1 Calculus II

and one of:

- MA261.2 Algebra II
- MA262.1 Statistics II (*odd years*)
- MA263.2 Numerical Analysis (*even years*)

Physics

Physics major

- PH160.1 Physics IA
- PH161.2 Physics IB
- PH260.2 Classical and Relativistic Mechanics (*odd years*)
- PH261.2 From Quantum to Quark
- PH262.1 Electricity and Magnetism
- PH360.1 Space Physics
- PH363.1 Electronics and Data Acquisition
- PHYS3510 Waveguides and Laser Physics*

NOTE: *offered from The University of Newcastle. Students should consult with the Dean of the Faculty regarding updates to subjects offered by The University of Newcastle. Subject alternations may vary according to student demand.

Physics electives

- PH361.1 Quantum Physics (*odd years*)
- PH362.2 Statistical and Condensed Matter Physics (*even years*)
- PH390.1/2 Seminar in Physics

Physics minor

- PH160.1 Physics IA
- PH161.2 Physics IB
- PH261.2 From Quantum to Quark

and one of:

- PH260.2 Classical and Relativistic Mechanics (*odd years*)
- PH262.1 Electricity and Magnetism
- PH263.1 Electronics and Data Acquisition

Degree structures

The following pages summarise the standard structures for the BSc degree: one major and two minors/two majors. In addition the structures for the Food and Nutrition major and the articulated programs in Herbal Therapies and Pathology are shown. Limited flexibility may be possible in the sequence of electives, Christian Studies subjects and sometimes in the major and minor sequences. Contact the Course Coordinator for details.

Bachelor of Science Standard Structure

One Major and Two Minors

| Sem | | | | |
|-----|------------------|--------------------------------|---|--------------------------------|
| 1 | Major 100 | 1 st Minor 100 | Elective | 2 nd Minor 100 |
| 2 | Major 100 | 1 st Minor 100 | CR143 Christian Studies I | 2 nd Minor 100 |
| 3 | Major 200 | Major 200/300 | 1 st Minor 200 | 2 nd Minor 200 |
| 4 | Major 200/300 | 1 st Minor 200 | CR243 Christian Studies II | 2 nd Minor 200 |
| 5 | Major 200/300 | Major 200/300 | Science Elective 200/300 | Science Elective 200/300 |
| 6 | Major 300 | Science Elective 200/300 | SC343 Christian Studies III— Scientific Perspectives in the Modern World | Elective |

Bachelor of Science Standard Structure

Two Majors

| Sem | | | | |
|-----|----------------------------------|----------------------------------|---|----------------------------------|
| 1 | 1 st Major 100 | Elective | Science Elective | 2 nd Major 100 |
| 2 | 1 st Major 100 | Elective | CR143 Christian Studies I | 2 nd Major 100 |
| 3 | 1 st Major 200 | 1 st Major 200/300 | 2 nd Major 200 | 2 nd Major 200/300 |
| 4 | 1 st Major 200/300 | Science Elective 200 | CR243 Christian Studies II | 2 nd Major 200/300 |
| 5 | 1 st Major 200/300 | 1 st Major 200/300 | 2 nd Major 200/300 | 2 nd Major 200/300 |
| 6 | 1 st Major 300 | Science Elective 200/300 | SC343 Christian Studies III— Scientific Perspectives in the Modern World | 2 nd Major 300 |

Bachelor of Science

Food and Nutrition Major/Biological Science Minor

This major requires some subjects to be studied at The University of Newcastle (Central Coast Campus)

| Sem | | | | |
|-----|---|--|---|---|
| 1 | CH163 General Chemistry | BI160 Biology 1 | Elective | 2 nd Minor 100 |
| 2 | HP161 Food Nutrition and Health | BI161 Comparative Functional Biology | CR143 Christian Studies I | 2 nd Minor 100 |
| 3 | DT261 Food Production Systems | BI264 General Microbiology | BI261 Biochemistry | 2 nd Minor 200 |
| 4 | DT263 Food Science | BI260 General Human Physiology | CR243 Christian Studies II | 2 nd Minor 200 |
| 5 | HP262 Nutrition Development and Performance | FSHN3010 Food Processing and Quality Management* | Science elective 200/300 | Science elective 200/300 |
| 6 | HP363 Health Promotion or BI370 Food Microbiology | FSHN3210 Food Product Development*# | SC343 Christian Studies III— Scientific Perspectives in the Modern World | SC361 Food Industry Experience or FSHN3080 Professional Practice* |

NOTES

BI370 only offered on sufficient demand

* offered by the University of Newcastle—Central Coast Campus

DT364 Design Project (Food Product Design) is offered in Semester 1 (*odd years only*) and may be taken instead of FSHN3210 Food Product Development in which case the Science elective would be taken in Semester 6 instead of Semester 5.

Bachelor of Science
 Biological Science (Biomedical Major)
 and
 Bachelor of Herbal Therapies

BSc (Biological Science—Biomedical major) at Avondale with some elective subjects
 studied at The University of Newcastle—Central Coast Campus, semesters 1 to 6

| Sem | | | | |
|-----|---|---|------------------------------------|---|
| 1 | Major BI160 Biology I | Minor CH160 Chemistry IA (or CH163) | 2 nd Minor 100 | HP160 Introduction to Psychology and Sociology |
| 2 | Major BI161 Comparative Functional Biology | Minor CH161 Chemistry IB | 2 nd Minor 100 | CR143 Christian Studies I |
| 3 | Major BI261 Biochemistry | Major BI264 General Microbiology | 2 nd Minor 200 | MT345 New Ventures and the Entrepreneur |
| 4 | Major BI365 Molecular Biology (<i>even years</i>) or BI360 Investigative Biochemistry (<i>odd years</i>) | Minor BI260 General Human Physiology | 2 nd Minor 200 | CR243 Christian Studies II |
| 5 | Major BI364 Advanced Human Physiology | Minor Chemistry elective 200 | Science elective 200/300 | CATH1010 Introduction to Complementary Medicine* |
| 6 | Major BI360 Investigative Biochemistry (<i>odd years</i>) or Major BI365 Molecular Biology (<i>even years</i>) | Science elective 300 | CATH1020 Herbal Materia Medica* | SC343 Christian Studies III— Scientific Perspectives in the Modern World |

*offered by the University of Newcastle—Central Coast Campus

**Bachelor of Herbal Therapies at The University of Newcastle—Central Coast Campus,
 Semesters 7 and 8 (final year)**

| | | | | |
|---|-------------------------------------|-----------------------------------|---|---|
| 7 | CATH3090 Professional Practice I | CATH2030 Human Therapeutics I | CATH1030 Medicinal Herb Botany and Identification | CATH2070 Symptom Analysis and Diagnosis |
| 8 | CATH3080 Clinical Pharmacology | CATH2040 Human Therapeutics II | CATH3010 Professional Practice II | CATH3140 Manufacturing and Prescription |

Bachelor of Science

Biological Science (Biomedical Major/Biological Chemistry Minor)
and
Bachelor of Medical Science (Pathology)

BSc (Biological Science—Biomedical major/biological chemistry minor) at Avondale with one distance education subject through Charles Sturt University (Wagga Wagga Campus), semesters 1 to 6.

| Sem | | | | |
|-----|--|---|---|---|
| 1 | Major BI160 Biology I | Minor CH160 Chemistry IA (or CH163) | MA164 General Mathematics | Elective |
| 2 | Major BI161 Comparative Functional Biology | Minor CH161 Chemistry IB | MA163 Introduction to Statistics | CR143 Christian Studies I |
| 3 | Major BI261 Biochemistry | Major BI264 General Microbiology | PH163 General Physics | CR243 Christian Studies II |
| 4 | Major BI365 Molecular Biology (<i>ven years</i>) or BI360 Investigative Biochemistry (<i>odd years</i>) | Minor BI260 General Human Physiology | Minor BI268 Clinical Biochemistry# (<i>even years</i>) or BI267 Histotechniques# (<i>odd years</i>) | BMS242.2 Human Cytogenetics* |
| 5 | Major BI364 Advanced Human Physiology | Science elective 200/300 | Science elective 200/300 | Elective |
| 6 | Major BI360 Investigative Biochemistry (<i>odd years</i>) or BI365 Molecular Biology (<i>even years</i>) | Science elective 300 | Minor BI267 Histotechniques# (<i>odd years</i>) or BI268 Clinical Biochemistry# (<i>even years</i>) | SC343 Christian Studies III— Scientific Perspectives in the Modern World |

* offered by Charles Sturt University—distance mode from Wagga Wagga Campus

offered at Sydney Adventist Hospital

BMedSc(Pathology) at Charles Sturt University—Wagga Wagga Campus Semesters 7 and 8 (final year)

| | | | | |
|---|----------------------------------|-------------------------------------|--------------------------|---------------------------------------|
| 7 | BMS308 Immunology | BMS314 Bacteriology/ Mycology | BMS216 Haematology I | BMS302 Clinical Biochemistry II |
| 8 | BMS324 Immuno- Haematology | BMS309 Cell Pathology | BMS306 Haematology II | BMS315 Virology/ Parasitology |