Bachelor of Science

includes:

Bachelor of Science

The Bachelor of Science is a general science course with current majors in analytical chemistry, conservation biology, mathematics, microbiology and immunology, physics, plant science and spatial science. It provides students with an appreciation of the interdisciplinary nature of much of modern scientific investigation, and produces highly employable graduates.

The course includes the following awards:

Bachelor of Science *BSc*

Course Study Modes and Locations

Bachelor of Science (5420SC)

Distance Education - Wagga Wagga
On Campus - Wagga Wagga

Availability is subject to change, please verify prior to enrolment.

Normal course duration

Bachelor of Science

Full-time 3.0 years (6.0 sessions)

Normal course duration is the effective period of time taken to complete a course when studied Full-time (Full-time Equivalent: FTE). Students are advised to consult the Enrolment Pattern for the actual length of study. Not all courses are offered in Full-time mode.

Admission criteria

CSU Admission Policy

Standard CSU and UAC admission criteria apply.

- Note: Assumed knowledge for all majors is NSW HSC or equivalent 2 Units of any mathematics course. Additional assumed knowledge for individual majors is as follows:
- Chemistry major: 2 unit Chemistry
- Mathematics major: Any 2 unit science course
- Spatial Science major: Any 2 unit science course
- Biology major: Any 2 unit science course
- Microbiology major: Any 2 unit science course

Successful applicants who believe they do not have an appropriate high school chemistry background are encouraged to undertake the chemistry subject offered in the University's STUDY LINK supplementary program prior to commencing study in the course.

Credit

CSU Credit Policy

Credits as assessed on a case-by-case basis.

Graduation requirements

To graduate students must satisfactorily complete 192 points.

Course Structure

The course comprises a set of core subjects, a major, a minor, and a number of electives:
• The core subjects are common to all combinations of majors and minors. There are six core subjects composed of four set subjects (STA201 STA308 SCI101and SCI201) and two additional breadth core subjects to be chosen outside the major and minor disciplines from BIO100 CHM108 MTH105 GEO164 PSC102, PHY107and MCR101. These subjects will broaden the basic scientific knowledge of graduates and therefore cannot align with the disciplines studied in their major or minor. They can however be a component of a second minor.
• The major must contain a minimum of 64 points (the equivalent of eight standard subjects) with at least 48 points at Level 2 or higher and at least 24 points at Level 3 or higher; restrictions to majors: the Analytical Chemistry major requires a minimum of 96 credit points (including 16 credit points in Mathematics, i.e., MTH101and MTH102). See Courses Director, Program Leader or designated course administrator for details.
• The minor must contain a minimum of 32 points (the equivalent of four standard subjects) with at least 16 points at Level 2 or higher;
• The major and minor areas of studies must align with the majors and minors described in this document. Students can only replace a subject suggested in a major or minor described in this document upon approval by the Courses Director, Program Leader or designated course administrator in order to retain the integrity of the disciplines. In exceptional cases, a student may be allowed to design a major and/or minor that is not described in this

document. This major or minor must satisfy the rules defined in this document, the nature of the discipline must be clearly identified, and design of the major or minor must be approved by the Courses Director, Program Leader or designated course administrator before studies are undertaken.
• Electives - at least 50% of the electives must be completed at Level 2 or above. An elective is any subject offered by the University (subject to any pre-requisites being met). Electives may be (1) chosen from several disciplines or (2) used to complete a second minor or (3) used to complete a double major (in which case the electives are chosen in the same discipline as the minor and complete the minor with the subjects required to make up the major as listed in this document). Where the total point value of the major and two minors (2), or the double major (3) is less than 192 points, the electives that would be required to complete the 192 points will also be undertaken, with at least 50% of the subjects taken in the second minor and any electives combined (2) or the double major and any electives combined (3) being at Level 2 or higher.

Majors
The majors offered at CSU include Analytical Chemistry, Conservation Biology, Mathematics, Microbiology and Immunology, Physics, Plant Science and Spatial Science.
Minors
The minors offered at CSU include Biology, Chemistry, Immunology, Information Technology, Mathematics, Microbiology, Physics, Spatial Science and Statistics.
Analytical Chemistry Major (this Major is accredited by the Royal Australian Chemical Institute)
CHM104Chemistry 1 A
CHM107Chemistry 1 B
MTH101Computer Aided Mathematics 1 with Applications
MTH102Computer Aided Mathematics 2 with Applications
CHM213Analytical Chemistry
CHM214Physical Chemistry
CHM215Inorganic Chemistry
CHM216Organic Chemistry
CHM321Laboratory Management Issues
CHM323Instrumental Analysis 1
CHM324Instrumental Analysis 2
CHM335Analytical Chemistry Industry Experience

Conservation Biology Major
BIO100Concepts of Biology
BIO112Principles of Ecology
BIO203Animal Diversity
HRT202Plant Taxonomy and Systematics
BIO262Vegetation Ecology
BIO416Conservation Biology
BIO323River and Floodplain Ecology

BIO328Restoration Ecology

Mathematics Major
MTH101Computer Aided Mathematics 1
MTH102Computer Aided Mathematics 2
MTH218Multivariable Calculus
MTH219Linear Algebra
MTH220Ordinary Differential Equations
MTH328Complex Analysis
MTH307Mathematical Modelling
MTH418Topics in Calculus

Suggested electives
MTH203Numerical Methods
MTH309Operation Research

Microbiology and Immunology Major
MCR101Introductory Microbiology
BMS240Human Molecular Genetics
BMS241Molecular Cell Biology
BMS215Microbial Biotechnology
BMS308Immunology
BMS315Medical Microbiology
BMS338Clinical Bacteriology
BMS344Molecular Immunology

Physics Major
PHY101Mechanics and Thermal Physics
PHY102Electricity and Waves
PHY215Scientific Instrumentation (Electronics)
PHY216Modern Physics
PHY299Introduction to Astronomy
PHY301Astrophysics
PHY302Quantum Mechanics
PHY304Relativity and Cosmology

Plant Science Major
CHM108Chemistry Fundamentals
PSC102Botany
MCR101Introduction to Microbiology
AGS203Agricultural Biotechnology
PSC215Plant Physiology
HRT202Plant Taxonomy and Systematics
HRT301Plant Propagation

PSC371Plant Pathology
AGR347Rural project

Suggested electives
PSC104Soil Science
BIO262Vegetation Ecology

Spatial Science Major
SCI103Communicating Environmental Data
SPA215Principles of GIS
SPA217Remote Sensing of the Environment
SPA308GIS Applications
SPA405Image Analysis
SPA412Integrated Remote Sensing and GIS
SPA414Critical Review of GIS and Geocomputation
SPA501Advanced GIS applications and modelling

Suggested electives
SPA503GIS Algorithms
SPA512Cartography and Data Visualisation

Biology Minor
BIO100Concepts of Biology
BIO112Principles of Ecology
BIO203Animal Diversity
HRT202Plant Taxonomy and Systematics

Chemistry Minor
CHM104Chemistry 1A
CHM107Chemistry 1B
CHM213Analytical Chemistry
CHM215Inorganic Chemistry OR CHM216Organic Chemistry

Immunology Minor
BMS240Human Molecular Genetics
BMS241Molecular Cell Biology
BMS308Immunology
BMS344Molecular Immunology

Information Technology Minor
ITC106Programming Principles
ITC161Computer Systems
ITC211Systems Analysis
ITC212Internet Technologies

Mathematics Minor
MTH101Computer Aided Mathematics 1
MTH102Computer Aided Mathematics 2
MTH218Multivariable Calculus
MTH219Linear Algebra

Microbiology Minor
MCR101Introductory Microbiology
BMS215Microbial Biotechnology
BMS338Clinical Bacteriology
BMS315Medical Microbiology

Physics Minor
PHY101Mechanical and thermal Physics
PHY102Electricity and Waves
PHY215Scientific Instrumentation (Electronics) OR PHY299Introduction to Astronomy
PHY216Modern Physics

Spatial Science Minor
SCI103Communicating Environmental Data
SPA215Principles of GIS
SPA217Remote Sensing of the Environment
SPA406GIS Applications

Statistics Minor
STA201Scientific Statistics
STA308Experimental Design and Analysis
And any 2 of
STA502Spatial Statistics
STA347Multivariate Statistics
STA427General Linear Models

Enrolment Pattern

Because of the flexibility of the course requirements (i.e., major/minor/breadth core combinations), there is no single enrolment pattern. Enrolment patterns should be requested from the Courses Director, Program Leader or designated course administrator.

Workplace learning

Please note that the following subjects may contain a Workplace Learning component.

CHM335 Analytical Chemistry Industry Experience

Residential School

Please note that the following subjects may have a residential school component.

BCM210 Foundations and Techniques in Biochemistry
BIO100 Concepts of Biology
BIO203 Animal Diversity
BIO262 Vegetation Ecology
BMS241 Molecular Cell Biology
BMS308 Immunology
BMS338 Clinical Bacteriology
CHM104 Chemistry 1A
CHM107 Chemistry 1B
CHM108 Chemical Fundamentals
CHM213 Analytical Chemistry
CHM214 Physical Chemistry
CHM215 Inorganic Chemistry
CHM216 Organic Chemistry
CHM321 Laboratory Management Issues
CHM323 Instrumental Analysis 1
CHM324 Instrumental Analysis 2
FDS202 Food Microbiology
HRT202 Plant Taxonomy and Systematics
HRT301 Plant Propagation
MCR101 Introduction to Microbiology
PHY101 Mechanics and Thermal Physics
PHY102 Electricity and Waves
PHY107 Engineering Physics
PHY215 Scientific Instrumentation (Electronics)
PHY216 Modern Physics
PHY299 Introduction to Astronomy
PSC102 Botany
PSC208 Plant Metabolism
PSC215 Plant Physiology
PSC371 Plant Pathology
STA427 Generalised Linear Models

Enrolled students can find further information about CSU residential schools via the *About Residential School* page.

Accreditation

Chemistry major graduates are qualified for membership of the Royal Australian Chemical Institute.

Contact

For further information about Charles Sturt University, or this course offering, please contact info.csu on 1800 334 733 (free call within Australia) or email inquiry@csu.edu.au

The information contained in the 2016 CSU Handbook was accurate at the date of publication: February 2016. The University reserves the right to vary the information at any time without notice.

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