



**Southern Cross
Catholic College**

**Subject Selection
Evening**

Sciences

Senior Sciences

Come and explore the world – Living system; composition of matter; marine environment and energy

Biology

Biology provides opportunities for students to learn about the life systems by:

Developing their understanding of cells and multicellular organisms; engage with the concept of maintaining the internal environment and study biodiversity and the interconnectedness of life. This knowledge is linked with the concepts of heredity and the continuity of life.

Career and employment prospects – medical sciences (medicine, physiotherapy, pharmacy, nursing), forensics, veterinary, food and marine sciences, agriculture, biotechnology, environmental rehabilitation, biosecurity, quarantine, conservation and sustainability, teaching/research.

Units of Study

Unit 1

Cells and multicellular organisms
Cells as the basis of life; Multicellular

Unit 2

Maintaining the internal environment
Homeostasis; infectious disease

Unit 3

Biodiversity and the interconnectedness of life
Describing biodiversity; Ecosystem dynamics

Unit 4

Heredity and continuity of life
DNA, genes and the continuity of life; Continuity of life on Earth

Chemistry

Chemistry is the study of materials and their properties and structure.

Prerequisite – Minimum Grade B in Mathematical Methods.

Career and employment prospects – fields of forensic science, engineering, medicine, pharmacy sports science, nursing and teaching/research.

Units of Study

Unit 1

Chemical fundamentals – structure, properties and reactions: properties and structure of atoms; properties and structure of materials. Chemical reactions – reactants, products and energy change.

Unit 2

Molecular interactions and reactions – intermolecular forces and gases; aqueous solutions and acidity; rates of chemical reactions.

Unit 3

Equilibrium, acids and redox reactions – Chemical equilibrium systems; Oxidation and reduction.

Unit 4

Structure, synthesis and design – Properties and structure of organic materials; Chemical synthesis and design

Marine Science

Marine Science provides opportunities for an interdisciplinary science focusing on marine environments and the consequences of human influences on ocean resources.

Career and employment prospects – marine sciences, biotechnology, aquaculture, environmental rehabilitation, biosecurity, quarantine, conservation, sustainability and teaching/research.

Units of Study

Unit 1

Oceanography – an ocean planet; the dynamic shore

Unit 2

Marine biology – Marine ecology and biodiversity; Marine environmental management

Unit 3

Marine systems – connections and change; The reef and beyond; changes on the reef

Unit 4

Ocean issues and resource management – Oceans of the future; managing fisheries.



Physics

Physics provides opportunities for students to engage with classical and modern understandings of the universe.

Prerequisite – Minimum Grade B in Mathematical Methods.

Career and employment prospects – science, engineering, medicine, technology and teaching/research

Units of Study

Unit 1

Thermal, nuclear and electrical physics
Heating processes;
Ionising radiation and nuclear reactions;
electrical circuits

Unit 2

Linear motion and waves
Linear motion and force; waves

Unit 3

Gravity and electromagnetism
Gravity and motion; electromagnetism

Unit 4

Revolutions in modern physics
Special relativity; quantum theory; the Standard Model



Assessments

Units 1 and 2

School Based assessments

Units 3 and 4

Students complete four summative assessments. The results from each of the assessments are added together to provide a subject score out of 100. Students will also receive an overall subject result (A–E).

Unit 3

Summative Internal Assessment 1 (A1) – 10%
Data Set
Summative Internal Assessment 2 (A2) – 20%
Student experiment
Summative external assessment (EA) – 50%
Examination

Unit 4

Summative Internal Assessment 3 (IA3) – 20%
Research questions