

**841**  
**821**

**11 BCH — BIOCHEMISTRY**  
**11 PSC — PHYSICAL SCIENCE**

**RECOMMENDED LEVEL OF ATTAINMENT**

65% in Year 10 Science

**INTRODUCTION** This *double* course (eight periods a week) is designed for students who have a special interest in Science. Its content covers the basics of Year 11 Science while studying at greater depth Biology, Chemistry and Physics.

It is recommended that students intending to take any of these science options in Year 12 should choose this course.

*Those who choose this course may NOT also take the Year 11 Science course.*

**FUTURE PATHWAYS**

12CHE, 12PHY, 12BIO, 12AGR,

**CONTENT – BIOCHEMISTRY**

This part of the course consists of two-thirds Biology, one third Chemistry.

- Plant processes and function.
- Micro-organisms and humans.
- Genetics.
- Metal chemistry.
- Aspects of carbon compounds.

There is an emphasis on developing transferable critical thinking and research communication skills which form a strong foundation for senior biology as well as other subjects and tertiary study.

**SKILLS – BIOCHEMISTRY**

- Practical investigative skills.
- Critical thinking, decision-making.
- Research using information technology.
- Co-operative skills, team-work.
- Scientific literacy.

**CONTENT – PHYSICAL SCIENCE**

This part of the course consists of six compulsory modules.

- Chemical reactions and equations.
- Acid and bases.
- Atomic structure.
- Chemistry practical investigation.
- Motion and forces.
- Heat transfer.
- Electricity and magnetism.

**SKILLS – PHYSICAL SCIENCE**

- Understand and carry out instructions efficiently
- Observe phenomena closely
- Use laboratory equipment correctly
- Design and carry out simple laboratory investigations
- Organise, record, present, interpret and critically appraise data
- Explain findings in the language of science
- Work together as part of a team.

**NCEA STANDARDS – 11BCH**

*Not all standards will necessarily be assessed.*

	Level	Credits	L1 Lit.	L1 Num.	
External					
90927 v3	1	4	yes	no	Biology 1.3 - Demonstrate understanding of biological ideas relating to micro-organisms
90928 v3	1	4	yes	no	Biology 1.4 - Demonstrate understanding of biological ideas relating to the life cycle of flowering plants
90932 v3	1	4	no	no	Chemistry 1.3 - Demonstrate understanding of aspects of carbon chemistry
90948 v3	1	4	yes	no	Science 1.9 - Demonstrate understanding of biological ideas relating to genetic variation
Internal					
90926 v3	1	3	yes	no	Biology 1.2 - Report on a biological issue
90946 v3	1	4	no	no	Science 1.7 - Investigate the implications of the properties of metals for their use in society

**NCEA STANDARDS – 11PSC**

*Not all standards will necessarily be assessed.*

	Level	Credits	L1 Lit.	L1 Num.	
External					
90934 v4	1	4	no	no	Chemistry 1.5 - Demonstrate understanding of aspects of chemical reactions
90937 v3	1	4	no	yes	Physics 1.3 - Demonstrate understanding of aspects of electricity and magnetism
90940 v3	1	4	no	yes	Science 1.1 - Demonstrate understanding of aspects of mechanics
90944 v4	1	4	no	no	Science 1.5 - Demonstrate understanding of aspects of acids and bases
Internal					
90930 v3	1	4	no	yes	Chemistry 1.1 - Carry out a practical chemistry investigation, with direction
90943v3		4	no	yes	Science 1.4 - Investigate implications of heat for everyday life