

SCIENCES

Course: Biology 201 (BIO 201)					Teacher to see: Mrs Percy				
COURSE DESCRIPTION: A strong emphasis on Genetics and how it affects life systems. Other topics include cells, animal form and function and ecology.					PREREQUISITES: Entry is done on a case-by-case basis and consultation with your 2020 science teacher.				
ELIGIBLE FOR COURSE ENDORSEMENT YES UNIVERSITY APPROVED LIST SUBJECT YES					COSTS: None				
Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway	
AS91155	2	Biology	Adaptation of plant or animals to their way of life	Int	3	Lit		PI, SI, SC	
AS91156	2	Biology	Life processes at the cellular level	Ext	4	Lit		PI, SI	
AS91157	2	Biology	Genetic variation and change	Ext	4	Lit		SC, PI	
AS91158	2	Biology	Patterns in an ecological community	Int	4	Lit		PI	
AS91159	2	Biology	Demonstrate understanding of gene expression	Ext	4	Lit		SC, PI	
AS91153	2	Biology	Carry out practical investigations in a biology context, with supervision.	Int	4				
Total Credits:					23				
Related careers: Conservation, medical sciences, genetics, molecular biology, veterinarian.									
Transferable skills: Essay writing, data collection and interpretation, analysing, investigating, collecting information.									

Course: Biology 202 (BIO 202)

Teacher to see: Mrs L Percy

COURSE DESCRIPTION: Emphasis on practical and investigative skills. Other topics include animal form and function and genetics.

PREREQUISITES: Entry is done on a case-by-case basis and consultation with your 2020 science teacher.

ELIGIBLE FOR COURSE ENDORSEMENT YES
UNIVERSITY APPROVED LIST SUBJECT YES

COSTS: None

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS 91153	2	Biology	Carry out a practical investigation in a biology context, with supervision	Int	4	Num		PI, MT,SI,SC
AS 91155	2	Biology	Demonstrate understanding of adaptations of plants or animals to their way of life.	Int	3	Lit		PI, SI, SC
AS 91160	2	Biology	Investigate biological material at a microscopic level	Int	3			PI, SC, SI
AS 91158	2	Biology	Investigate a pattern in an ecological community, with supervision	Int	4	Lit		PI
AS 91159	2	Biology	Demonstrate understanding of gene expression	Ext	4	Lit		SC, PI
Total Credits:					18			

Related career: Conservation, laboratory technician, medical sciences, veterinarian, health sciences

Transferable skills: Essay skills, data collection and interpretation, using a microscope, analysing, investigating, collecting information.

Course: Biology 301 (BIO 301)

Teacher to see: Mrs Percy

COURSE DESCRIPTION: Topics include responses of organisms to the environment, animal behaviour, speciation and research.

PREREQUISITES: Entry is done on a case-by-case basis and consultation with your 2020 science teacher.

ELIGIBLE FOR COURSE ENDORSEMENT YES

UNIVERSITY APPROVED LIST: YES

COSTS: None

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS91605	3	Biology	Evolutionary processes leading to speciation.	Ext	4	Lit	R/W	MT PI SC
AS91604	3	Biology	How animals maintains a stable internal environment.	Int	3	Lit	R	PI SCS
AS91603	3	Biology	Responses of plants and animals to their external environment.	Ext	5	Lit	R/W	PI
AS91602	3	Biology	Integrate biological knowledge to develop an informed response to a socio-scientific issue.	Int	3	Lit	R/W	MT PI SC
AS91606	3	Biology	Trends in human evolution.	Ext	4	Lit	R/W	PI
AS91607	3	Biology	Demonstrate understanding of human manipulations of genetic transfer and its biological implications.	Int	3	Lit	R	M, P, SC

Total Credits:

22

Related careers: Conservation, medical sciences, genetics, molecular biology, veterinarian.

Transferable skills: Essay writing, data collection and interpretation, analysing, investigating, collecting information.

Course: Biology 302 (BIO302)

Teacher to see: Mrs Percy

COURSE DESCRIPTION:

This course is designed for students who need a science to enable them to enter into tertiary courses.

PREREQUISITES: Entry is done on a case-by-case basis and consultation with your 2020 science teacher.

COSTS: None

ELIGIBLE FOR COURSE ENDORSEMENT Yes

UNIVERSITY APPROVED LIST SUBJECT Yes

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
US6314	3	Biology	Complete an investigation into the ecological niche of a plant species, with guidance	I	4			
AS 91601	3	Biology	Carry out a practical investigation	I	4			
AS 91604	3	Biology	Demonstrate understanding of how an animal maintains a stable internal environment.	I	3	Lit	Y	
AS91606	3	Biology	Demonstrate understanding of trends in human evolution.	E	4	Lit	Y	PI
US27457	3	Health, Disability and Aged Support	Describe the anatomy and physiology of systems and associated organs of the human body.	I	6			
AS91602	3	Biology	Integrate biological knowledge to develop an informed response to a socio-scientific issue.	I	3	Lit	Y	SC, PI, MT
Total Credits:					24			

Related career: Genetics, health services, horticulture, conservation

Transferable skills: Essay writing, data collection and interpretation, analysing, investigating, collecting information

Course: Chemistry 201 (CHE 201)

Teacher to see: Mrs Wade

COURSE DESCRIPTION: This course contains standards on many of the main topics in Chemistry which are studied through university. It is for a science student who wishes to pursue a career in which Chemistry is a part.

PREREQUISITES: Entry is done on a case-by-case basis and consultation with your 2020 science teacher.

ELIGIBLE FOR COURSE ENDORSEMENT: YES
UNIVERSITY APPROVED LIST SUBJECT YES

COSTS: None

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS91910	2	Chem	Carry out quantitative analysis	Int	4	Num		MT P SC C
AS91911	2	Chem	Carry out investigation into chemical species	Int	3			MT P SC C
AS91164	2	Chem	Bonding, structure, properties, and energy changes	Ext	5	Lit		MT P SC C
AS91165	2	Chem	Structural formulae and reactions of compounds containing selected organic functional groups	Ext	4	Lit		MT P SC C
AS91166	2	Chem	Chemical reactivity	Ext	4	Lit		MT P SC C
AS91167	2	Chem	Oxidation-reduction reactions	Int	3			MT P SC C
Total Credits:					23			

Related careers: Health, engineering, science and technology professions and trades.

Transferable skills: Drawing structures, identifying trends and relationships, calculations.

Course: Chemistry 202 (CHE 202)

Teacher to see: Mrs Wade

COURSE DESCRIPTION: This course is for students who will need some chemistry to support their tertiary learning or apprenticeship but will not be going on to a degree in sciences or technology on leaving school. The course offers a reduced number of Standards.

PREREQUISITES: Entry is done on a case-by-case basis and consultation with your 2020 science teacher.

COSTS: None

ELIGIBLE FOR COURSE ENDORSEMENT: Yes
UNIVERSITY APPROVED LIST SUBJECT YES

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS91164	2	Chem	Bonding, structure, properties and energy changes	Ext	5	Lit		
AS91190	2	Chem	Carry out quantitative analysis	Int	4	Num		
AS91911	2	Chem	Carry out investigation into chemical species	Int	3			
AS91163	2	Chem	Chemistry in the development current technology	Int	3	Lit		
AS91167	2	Chem	Demonstrate understanding of oxidation-reduction	Int	3			
Total Credits:					18			

Related careers: Health, engineering, science and technology and trades.

Transferable skills: Identifying trends and relationships, calculations, solving problems, identifying acids and bases.

Course: Chemistry 301 (CHE 301)

Teacher to see: Mrs Wade

COURSE DESCRIPTION: This course leads directly into first year Chemistry at university. The topics covered are the same as in Level 2 Chemistry but with greater depth of knowledge.

PREREQUISITES: Entry is done on a case-by-case basis and consultation with your 2020 science teacher.

ELIGIBLE FOR COURSE ENDORSEMENT: Yes

UNIVERSITY APPROVED LIST: Yes

COSTS: None

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS91388	3	Chem	Spectroscopic data in chemistry	Int	3			
AS91389	3	Chem	Demonstrate understanding of chemical processes in the world around us	int	3		Y	
AS91390	3	Chem	Thermochemical principles	Ext	5		Y	
AS91391	3	Chem	Properties of organic compounds	Ext	5		Y	
AS91392	3	Chem	Equilibrium principles in aqueous systems	Ext	5	Y	Y	
AS91393	3	Chem	Oxidation-reduction processes	Int	3		Y	
Total Credits:					24			

Related careers: Health, engineering, science and technology professions.

Transferable skills: Drawing and recognising organic structures, calculations, analysing, writing.

Course: Chemistry 302 (CHE 302)**Teacher to see: Mrs Wade**

COURSE DESCRIPTION: The course builds on the production and synthesis of organic compounds in the world. It will aid the understanding of production of medicinal organic compounds, production of pure substances and provide a good insight of the microscopic level of chemistry.

PREREQUISITES: Entry is done on a case-by-case basis and consultation with your 2020 science teacher.

COSTS: None

ELIGIBLE FOR COURSE ENDORSEMENT YES

UNIVERSITY APPROVED LIST SUBJECT YES

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS91165	2	Chem	Demonstrate understanding of the properties of selected organic compounds	Ext	4			CI
AS91389	3	Chem	Demonstrate understanding of chemical processes in the world around us	Int	3		Y	
AS91390	3	Chem	Demonstrate understanding of thermochemical principles and the properties of particles and substances	Ext	5		Y	CI
AS91393	3	Chem	Demonstrate understanding of oxidation-reduction processes	Int	3			CI
Total Credits:					15			

Related career: Food Science, Chemist, Research, Medicinal Chemistry, Nursing, Doctor, Medicinal research, Drug Production, Agriculture

Transferable skills: Use Chemistry principles to everyday life

Course: Medical Science 101 (MED 101)

Teacher to see: Mrs Coup

COURSE DESCRIPTION: This course consists of two lines of Science to support students with the extra Science needed to follow a profession into a medical industry.

Topics include: Genetics, Electricity & Magnetism, Microbes and more.

PREREQUISITES: This course is funded by an outside agency to support Pasifika and Maori into Medical Science professions. Application only. See Mrs Coup.

COSTS: Subject fees: None

ELIGIBLE FOR COURSE ENDORSEMENT YES

UNIVERSITY APPROVED LIST SUBJECT YES

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS 90948	1	Science	Genetics	Ext	4	Lit		
AS 90927	1	Science	Micro-organisms	Int	4			
AS 90925	1	Biology	Carry out a practical investigation	Int	4	Num		
AS 90926	1	Biology	Report on a biological issue	Int	3	Lit		
AS 90940	1	Science	Mechanics	Ext	4	Num		
AS 90930	1	Chemistry	Carry out a practical chemical investigation	Int	4	Num		
AS 90937	1	Physics	Electricity and magnetism	Ext	4	Num		
AS 90944	1	Science	Acids and bases	Ext	4			
AS 90935	1	Physics	Practical physics investigation	Int	4	Num		
Total Credits:					35			

Related careers: Doctor, Nurse, Physiotherapist, Radiologist, Occupational Therapist, Engineer.

Transferable skills: Critical thinking, collecting and processing information, calculating, evaluating.

Course: Physics 201 (PHY 201)

Teacher to see: Ms Holloway

COURSE DESCRIPTION: A study of Mechanics – Laws of motion, graphs, vectors, Waves and light, Mechanics, Nuclear physics, Electricity and electromagnetism.

PREREQUISITES: Entry is done on a case-by-case basis and consultation with your 2020 science teacher.

ELIGIBLE FOR COURSE ENDORSEMENT YES
UNIVERSITY APPROVED LIST SUBJECT YES

COSTS: None

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS91168	2	Physics	Practical physics investigation	Int	4	N		C, MT, SC, CI
AS91170	2	Physics	Waves	Ext	4	N		C, MT, SC, CI
AS91171	2	Physics	Mechanics	Ext	6	N		C, MT, SC, CI
AS91172	2	Physics	Atomic and Nuclear physics	Int	3	N		C, MT, SC, CI
AS91173	2	Physics	Electricity and Electromagnetism	Ext	6	N		CI, MT, SC, CI
Total Credits:					23			

Related careers: Engineering, Medicine, Dentistry, Veterinary science, Research, Teaching.

Transferable skills: Ability to collect and assess data, critical thinking, calculations.

Course: Physics 202 (PHY 202)

Teacher to see: Ms Holloway

COURSE DESCRIPTION:

This course covers Atomic and Nuclear physics and Electricity and Electromagnetism.

ELIGIBLE FOR COURSE ENDORSEMENT YES

UNIVERSITY APPROVED LIST SUBJECT YES

PREREQUISITES: Entry is done on a case-by-case basis and consultation with your 2020 science teacher.

COSTS: None

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS91168	2	Physics	Practical Investigation	Int	4			C, M, SC, CI
AS91169	2	Physics	Demonstrate understanding of the physics relevant to a selected context	Int	3			C, MT, SC, CI
AS91172	2	Physics	Atomic and nuclear physics	Int	3			C, MT, SC, CI
AS91173	2	Physics	Electricity and Electromagnetism	Ext	6			C, MT, SC, CI
Total Credits:					16			

Related careers: Engineering, Building, Electrician, Plumber and most other trades.

Transferable skills: Ability to collect and assess data, critical thinking, calculations.

Course: Physics 301 (PHY 301)				Teacher to see: Ms Holloway				
COURSE DESCRIPTION: A study of Mechanics (translational, rotational and simple harmonic motion), Waves, Modern physics and Electrical systems (DC and AC circuits). ELIGIBLE FOR COURSE ENDORSEMENT YES UNIVERSITY APPROVED LIST SUBJECT YES				PREREQUISITES: Entry is done on a case-by-case basis and consultation with your 2020 science teacher.				
				COSTS: None				
Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS91521	3	Physics	Practical physics investigation	Int	4			
AS91524	3	Physics	Mechanics – translational, rotational, SHM	Ext	6			
AS91523	3	Physics	Waves	Ext	4			
AS91526	3	Physics	Electrical systems	Ext	6			
AS91525	3	Physics	Modern physics	Int	3			
Total Credits:					23			
Related careers: Engineering, Medicine, Dentistry, Veterinary science, Research, Teaching. Transferable skills: Ability to collect and assess data, critical thinking, calculations.								

Course: Physics 302

Teacher to see: Ms Holloway

COURSE DESCRIPTION:

This course is designed for those students who are not intending Physics at University. These students want to continue with Physics in order to enter a trade course and are aiming for 14+ credits over 2 years.

ELIGIBLE FOR COURSE ENDORSEMENT YES

UNIVERSITY APPROVED LIST SUBJECT YES

PREREQUISITES: Have done either physics 201 or 202.

COSTS: None

Standard	Level	Domain	Title	Int/Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS91521	3	Physics	Carry out a practical physics investigation that leads to a non-linear mathematical relationship.	Int	4	Y	N	Construction MT, SC, CI
AS915224	3	Physics	Application of Physics to a selected topic.	Int	3	Y	N	Construction MT, PI, SC, CI
AS91523	3	Physics	Demonstrate an understanding of waves	Ext	4	Y	N	Construction MT, PI, SC, CI
AS91525	3	Physics	Demonstrate an understanding of modern physics	Int	3	N	N	Construction MT, PI, SC, CI
AS91527	3	Physics	Use physics knowledge to develop an informed response to a socio-scientific issue.	Int	3	N	Y	Construction MT, PI, SC, CI
Total Credits:					14			

Related career: Engineering, Auto mechanic, Building, Electrician, Plumber and most other trades

Transferable skills: Ability to collect and assess data, critical thinking, calculations

Course: Science 101 (SCI 101)				Teacher to see: Mrs Coup				
COURSE DESCRIPTION: This course is designed for students who wish to go on in the single science courses (Chemistry, Physics, Biology) in Years 12 and 13 and university. Topics include genetics, chemical reactions, electricity and magnetism. ELIGIBLE FOR COURSE ENDORSEMENT YES UNIVERSITY APPROVED LIST SUBJECT YES				PREREQUISITES: A solid understanding of Year 10 Science.				
				COSTS: None				
Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS90948	1	Science	Genetic variation	Ext	4	Lit		
AS90940	1	Science	Mechanics	Ext	4	Num		
AS90947	1	Science	Chemical reactions	Int	4			
AS90944	1	Science	Acids and bases	Ext	4			
AS90941	1	Physics	Electricity and magnetism	Int	4	Num		
Total Credits:					20			
Related careers: Scientist, teaching, medical professions, pharmacology, engineering, plumbing, dentistry, veterinary, nutrition. Transferable skills: Graphing, observing, making inferences, writing conclusions, tabulating, analysis, research.								

Course: Science 102 (SCI 102)

Teacher to see: Mrs Coup

COURSE DESCRIPTION: This course is designed for students less likely to do the individual sciences (Biology, Chemistry, Physics) in Years 12 and 13 or to pursue sciences at university level. N.B Students will only gain credits in one microorganism standard.

PREREQUISITES: A sound understanding in Year 10.

COSTS: None

ELIGIBLE FOR COURSE ENDORSEMENT YES

UNIVERSITY APPROVED LIST SUBJECT NO

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS90927	1	Biology	One of: Micro-organisms	Ext		Lit		
AS90950	1	Science	<u>or</u> Humans and micro-organisms	Int	4			
AS90935	1	Physics	Practical physics investigation - linear relationship	Int	4	Num		
AS90951	1	Science	The biological impact of an event on a New Zealand ecosystem	Int	4			
AS90946	1	Science	Properties of metals for their use in society	Int	4			
AS90947	1	Science	Chemical reactions	Int	4			
Total Credits: (Note: Students will gain credits for either AS90927 or AS90950 (not both))					20			

Related careers: Scientist, teaching, medical professions, pharmacology, engineering, plumbing, dentistry, veterinary, nutrition.

Transferable skills: Graphing, observing, making inferences, writing conclusions, tabulating, analysis, research.

Course: Science 103 (SCI 103)

Teacher to see: Mrs Coup

COURSE DESCRIPTION: This course is designed for ESOL students and students whom do not intend taking Science in Years 12 and 13. Topics include astronomy, growing plants, metals and microbes.

PREREQUISITES: None

COSTS: None.

ELIGIBLE FOR COURSE ENDORSEMENT NO
UNIVERSITY APPROVED LIST SUBJECT NO

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
AS90922	1	Agri./Hort.	Design a landscape	Int	3			
AS90925	1	Biology	Practical biological investigation	Int	4	Num		
AS90954	1	Science	Effects of astronomical cycles on planet Earth	Int	4			
AS90918	1	Horticulture	Practical horticultural investigation	Int	4	Num		
AS90946	1	Science	Properties of metals for their use in society	Int	4			
AS90950	1	Science	Humans and micro-organisms	Int	4			
Total Credits:					23			

Related careers: Most careers and all trades require an understanding in science.

Transferable skills: Graphing, research, reporting, analysing.

Course: Vocational Science 203 (SCV 203)

Teacher to see: Mrs Coup

COURSE DESCRIPTION: This is a science course for students in a vocational academy for whom science is a requirement for future training. Students will be provided an individual learning plan and set of Standards according to their future pathway and therefore the credits offered will vary. The standards below are some of which are available.

PREREQUISITES: Students must be in an academy. Entry is subject to the approval of the Head of Science and Head of Vocational Pathways.

COSTS: None

ELIGIBLE FOR COURSE ENDORSEMENT NO
UNIVERSITY APPROVED LIST SUBJECT NO

Standard	Level	Domain	Title	Int / Ext	Cr	Level 1 Lit / Num	U.E. Literacy	Vocational Pathway
91162	2	Chemistry	Identify ions in a solution	Int	3			
91172	2	Physics	Nuclear Physics	Int	3			
91169	2	Physics	Physics research	Int	3			
91160	2	Biology	Microscope Investigation	Int	3			
91289	2	Horticulture	Horticulture Investigation	Int	4			
Total Credits:					TBC			

Related careers: Most careers and all trades require an understanding in science.

Transferable skills: Graphing, research, reporting, analysing.