



Rangi Ruru
Girls' School

LEVEL 3 TAUANGA STATISTICS Programme of Learning 2024

Welcome to Level 3 Statistics. This is a full year course in which you will engage with both descriptive and inferential Statistics. You will have the opportunity to gain up to 20 Level 3 credits for your NCEA, with 3 Achievement Standards (12 credits) internally assessed, and the remainder assessed by external examination at the end of the year.

In this course you will learn to:

- Pose purposeful questions that can be answered using statistical methods.
- Manage and manipulate data sets.
- Analyse patterns in data using Time Series, Bivariate, and Inference methods.
- Evaluate statistical claims and the robustness of studies.
- Explore a range of distributions used to model situations involving probability.

Teaching and learning experiences will include individual, pair, and group activities. You will engage with both manufactured and real-world data sets to learn and apply different methods of analysis. You will be encouraged to think critically about the context surrounding a data set and posit possible causes for data features. Strong literacy skills, research skills, and an awareness of current affairs will allow you to engage more effectively with this aspect of the course. Finally, through consistent practise you will learn about five common probability distributions and the myriad of situations they can model.

Topic Order and Approximate Timing

Topic	AS	Time	Assessment
3.8 Investigate time series data	91580 4 credits	6 wks.	Internal Final Wk. 6
3.9 Investigate bivariate measurement data	91581 4 credits	5 wks.	
3.9 Investigate bivariate measurement data	91581 4 credits	2 wks.	Internal Final Wk. 2
3.14 Apply probability distributions in solving problems: Tri, Uni, Bin Interleave starters from here	91586 4 credits	2 wks.	External
3.10 Use statistical methods to make a formal inference	91582 4 credits	5 wks.	Internal Final Wk. 9
3.14 Apply probability distributions in solving problems	91586 4 credits	4 wks.	External
School Exam - 1.5-hour exam for 91586		In wk. 5	
3.12 Evaluate statistically based reports	91584 4 credits	4 wks.	External
3.12 Evaluate statistically based reports	91584 4 credits	2 wks.	External – Derived Grade test Week 2
Final Examination for 91584 and 91586			Thursday 14 th November (am)
<i>Scholarship examination covering ALL Y13 Statistics standards</i>			<i>Tuesday 5th November (pm)</i>

Assessment

General information about school policies and procedures for assessment is available on the Student Hub. It is important that you are aware of the school policies about assessment. Further information pertaining to each individual assessment will be given to you in the week prior to the assessment start date. If you are in doubt about anything, please ask your teacher. It is **your** responsibility to be well informed about any assessment requirements.

The plan above gives a general indication of the timing of assessments, but you will be given at least one week's notice of the exact day and time of a final assessment for the Internal Achievement Standards. Note dates and times carefully in your diary and discuss any problems with timing with your teacher in advance.

School examinations

The school examination in Term 3 is a useful practice for the real examination in November. The grades obtained in the school examinations contribute to subject placing and are also used for derived grades.

An assessment for Evaluate Statistically Based reports in Term 4 will generate a derived grade for that paper.

Checking and recording your results

Marking will be done carefully and checked, but there is always a possibility of an error. After an assessment, you will have an opportunity to check your results. *During this time, you must not mark your assessment in any way, or take it out of the room.* If you disagree with the marking you can ask your teacher to check the marking. If you are not satisfied at this stage, then there is an appeal procedure.

When a result for an internal or a school examination result has been checked you should record it on your own progress record in your handbook, so that at a later date you can check and sign the assessment record kept on the school database. Internal results or derived grades will then be sent to NZQA directly.

Assessed work for the internal standards will be stored at school.

Stationary Required

Students will be required to have the following items for this course:

- Ring Binder/Clear file/Equivalent
- Laptop with Microsoft Excel downloaded.
- Graphics Calculator Casio fx 9750GII or fx 9860
- Refill or a 1B5 exercise book
- Pens, Pencils, and highlighters

Student Workbooks will be ordered throughout the year and charged upon distribution.

Rangi Values	How will ākonga demonstrate these values?	Rangi Graduate Dispositions	How will ākonga develop these dispositions?	Culturally Empowering Pedagogy	
Respect/Whakaute	<i>Ākonga will show respect for their classmates at all times, understanding the need for differentiation, and differing paces of learning. Ākonga will show respect for the subject and Kaiako by completing homework, listening, and following all instructions.</i>	Be You	<i>Ākonga are encouraged to be curious through asking questions. Ākonga are encouraged to develop their learning strategies through trying different approaches to see what works for them.</i>	Tikanga, Te Reo Maori and Mātauranga Maori will be woven into this learning through:	<i>Kaiako and Ākonga are encouraged to use te reo maori where they feel appropriate/confident. The environment will demonstrate Manaakitanga for all Ākonga. Authentic mātauranga maori mathematical contexts will be included where appropriate. All Ākonga will see where the Mathematics being studied is relevant to them – purpose, how it relates to them and fits into their world (the Kaupapa).</i>
Aroha	<i>Ākonga will support other learners by participating in an inclusive and positive classroom culture</i>	Belong	<i>Ākonga are encouraged to link their learning to personal experiences and local contexts (e.g. real-life contexts and datasets)</i>		
Enthusiasm & Endeavour Rikarika & Ngana	<i>Ākonga will strive for their own personal best in learning, and will be encouraged to attempt extension activities, online practice, and attend offered tutorials.</i>	Be The Change	<i>Ākonga are encouraged to be creative with solutions and developing original solutions.</i>	Opportunities for cultures of other students will be incorporated through:	
Generosity of Spirit Manaakitanga	<i>Ākonga will support each other and provide support for others when needed, helping classmates when appropriate.</i>	Be Your Best	<i>Ākonga are encouraged to strive for their own personal best in their learning – personalised learning.</i>		
Integrity/Tika	<i>Ākonga will show integrity by ensuring they submit authentic evidence of their learning.</i>			Opportunities to think & connect as a globally minded citizen will include:	<i>Learners will be encouraged to investigate Mathematics in other cultures.</i>

Progress outcomes typically by the end of year 13

Understand/kia mārama	Know/ kia mōhio	Do/kia mahi
<ul style="list-style-type: none"> • The world is full of patterns and structures that we use mathematics to understand • The world is characterised by change and variation that we use mathematics to understand • Mathematical logic and reasoning enable us to identify and explain relationships and to justify conclusions. • The interface between mātauranga Māori and mātauranga mathematics offers opportunities for insights that uphold the integrity of each knowledge system • Mathematics has a continuous, evolving human history. 	<ul style="list-style-type: none"> • Use ethical and responsible data practices when designing and conducting studies, storing, and transferring data, and evaluating studies • Determine whether a random sample, an experiment, a secondary data source, or another approach is most suitable for answering an investigative question • Design and implement a simple randomised experiment to compare two groups • Create, manipulate, and merge data from a variety of sources manually and using statistical software, creating a range of relevant data visualisations for it • Select, use, and evaluate appropriate statistical models for making predictions (including regression, time-series, and classification models) • Use the results from analyses to form and communicate conclusions, acknowledge uncertainty, and make new conjectures • Critique data- and chance-based information, data visualisations, embedded statistics, and claims from a variety of sources, including the media • Conduct large-scale simulations to model probability outcomes • Predict and explain effects caused by changing the parameters of probability distributions • Estimate and calculate probabilities of independent, combined, and conditional events • Calculate, interpret, and evaluate risk • Calculate, interpret, and evaluate the expected value of a numerical random variable • Make and critique claims for reports on polls by taking into account the informal margin of error and considering possible sources of bias. 	<ul style="list-style-type: none"> • Te tūhura pūāhua Investigating situations <ul style="list-style-type: none"> - pose a question for investigation - find entry points for addressing a question, identifying relevant prior knowledge, givens, assumptions, constraints, relationships, and concepts - plan an investigation pathway and follow it in a systematic and organised way - monitor and evaluate progress, adjusting the investigation pathway if needed - make sense of outcomes or conclusions in light of a given situation and context • Te whakaata pūāhua Representing situations <ul style="list-style-type: none"> - use representations to find, compare, explore, simplify, illustrate, prove, and justify patterns, variations, and trends - use representations to learn new ideas, explain ideas to others, investigate conjectures, and support arguments - select, create, or adapt appropriate mental, oral, physical, virtual, graphical, or diagrammatic representations - use visualisation to mentally represent and manipulate relationships, objects, and ideas. • Te tūhono pūāhua Connecting situations <ul style="list-style-type: none"> - suggest connections between ideas and approaches - suggest connections between different representations - connect new ideas to things I already know - make connections to ideas in other learning areas and in a range of cultural, linguistic, and historical contexts.



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Level 3 Statistics Standards 2024

Achievement Standard Number	Version Number	Title	Mode of Assessment	Credits
91580 3.8	v2	Investigate time series data	Internal	4
91581 3.9	v2	Investigate bivariate measurement data	Internal	4
91582 3.10	v2	Use statistical methods to make a formal inference	Internal	4
91584 3.12	v2	Evaluate statistically based reports	External	4
91586 3.14	v2	Apply probability distributions in solving problems	External	4