

# Statistics Learning Centre Videos

The popular videos on the Statistics Learning Centre Youtube Channel are only some of the excellent videos created by Dr Nic and the team.

By subscribing to Statistics Videos (International) you gain access to all the videos on our YouTube channel and many more, as listed below, with no advertising and at higher definition.

Purchased access is for six months. By purchasing access you agree to use the videos for your own personal study only. You may not use the videos for teaching without written permission from Statistics Learning Centre: email [help@StatsLC.com](mailto:help@StatsLC.com) to request permission. (An additional fee may apply.)

## Other resources

You can get posters, reminder cards and data cards with lessons at our shop at <http://Shop.StatsLC.com/>



## Credentials

Between them the directors have over forty years' experience developing high quality teaching and learning resources.

**Dr Nicola Petty (Dr Nic)** is a director of Statistics Learning Centre and the author of the blog "Learn and teach statistics and operations research". Her statistics videos on YouTube are used in schools throughout New Zealand and the world.



After twenty years of teaching statistics and operations research to commerce students at the University of Canterbury, Dr Nic returned to her roots as a high school teacher and loves to provide resources and help to teachers and learners of statistics at high school level.



**Dr Shane Dye** is co-director of Statistics Learning Centre. Shane also comes from the University of Canterbury where he taught and researched Operations Research for fifteen years. Shane provides the programming and technical background and some of the materials.

# Videos available on [Statistics Videos \(International\)](#)

## Statistical Enquiry Cycle and Sampling

Video introducing the PPDAC cycle



This video introduces the statistical enquiry cycle or PPDAC cycle

Video Using the PPDAC Cycle on Existing Data



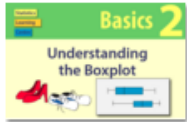
This video explains how the statistical enquiry cycle or PPDAC cycle can be applied when you are given a set of data, rather than starting at the beginning.

Video teaching about Summary Statistics - Mean, median and mode.



This video introduces summary statistics, mean, median and mode.

Video explaining about the Boxplot and how to interpret it.



This video introduces the boxplot and explains how to interpret it, using the shoe example.

Video teaching about interpreting graphs, using the OSEM acronym.



This video gives a way of comparing and writing about samples. OSEM stands for Obvious, Specify, Evidence, Meaning.

Video: Variation and sampling error



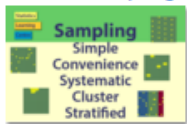
This video shows where variation comes from, and why we cannot avoid sampling error.

Video: Non-sampling Error



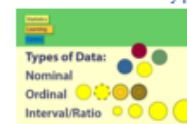
This video explains what non-sampling error is and shows the various sources of non-sampling error.

Video: Sampling Methods



Different ways of taking a sample

Video about Types of Data or Levels of Measurement.



This video explains the levels of data, and gives ideas on which statistics and graphs are most suitable. Because it was written for students using Excel, the dotplot and boxplot are sadly neglected, a fact which will be addressed in the next edition of the video.

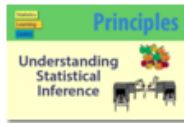
Video: Important Statistical concepts



This video explains three important concepts in statistics: Significance and Usefulness, Evidence and Strength, and Association and Causation.

# Confidence Intervals and Inference

## Video: Understanding Statistical Inference



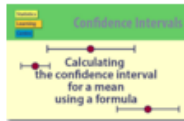
This video introduces the difference between descriptive statistics and inferential statistics. It outlines the role of sample and population. It explains why inference is possible, in conceptual terms.

## Video: Understanding Confidence Intervals



This video explains what a confidence interval is, without any formulas. It also addresses the effect of sample size and population variability on the size of a confidence interval.

## Video: Calculating the Confidence Interval for a Mean using a formula



This video explains how to use the traditional formula to calculate the confidence interval for a mean.

## Video: Confidence Intervals using Bootstrapping



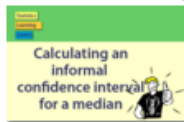
This video explains what bootstrapping is, in straightforward terms, using apples.

## Video: Calculating a Bootstrap Confidence Interval for the Difference of Two Medians



This video shows how to decide if two medians are different.

## Video: Calculating an informal confidence interval for a median.



This video explains how to use the "informal confidence interval" formula for a median..

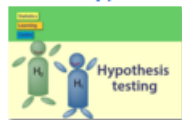
# Hypothesis Testing

## Video: Understanding the p-value



This video explains what a p-value is, and illustrates its use.

## Video: Hypothesis tests, p-value



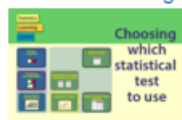
This video shows the main steps of any hypothesis test, using difference of two means as an example.

## Video: Two-means t-test in Excel



This video follows on from the video "Hypothesis testing" and shows how to use Excel to perform a test of difference of two means.

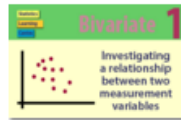
## Video: Choosing which statistical test to use



This video goes through seven different common hypothesis tests, with examples, and gives a process by which students can choose which test is appropriate for a given situation.

# Bivariate Analysis

Video: [Investigating a relationship between two measurement variables](#)



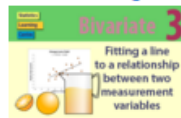
A video to show you how to explore the relationship between two measurement variables, using a scatterplot.

Video: [Example of a bivariate investigation](#)



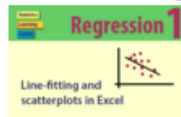
A video giving an example of a bivariate investigation, following the PPDAC cycle. Waimarie looks at the juice yield of oranges for her juice stall. (Still in production)

Video: [Fitting a line to a relationship between two measurement variables](#)



A video giving an example of a bivariate investigation, following the PPDAC cycle. Waimarie looks at the juice yield of oranges for her juice stall. (Still in production)

Video: [Line-fitting and scatter-plots in Excel](#)



This video is an introduction to line-fitting, using Excel.

Video: [Regression in Excel](#)



This video follows on from the video, Scatterplots in Excel, and teaches how to interpret regression output.

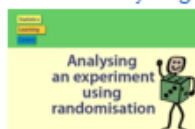
# Experiments and Questionnaires

Video: [Experimental Design Elements](#)



This video introduces the language and concepts of experiments.

Video: [Analysing an experiment using a randomisation test](#)



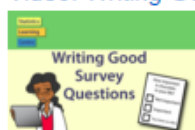
This video teaches how to use randomisation to analyse an experiment.

Video: [Designing a Questionnaire](#)



This video teaches the steps of good questionnaire design.

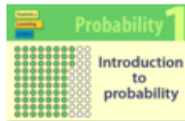
Video: [Writing Good Survey Questions](#)



This video teaches how to write good survey questions, with examples.

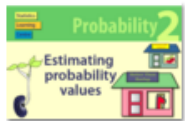
# Probability

## Video: Understanding Probability



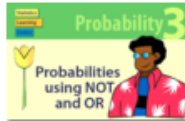
This is an introduction to what probability is and why we need it.

## Video: Estimating Probability Values



This shows different ways of estimating probability values.

## Video: Probabilities using NOT and OR



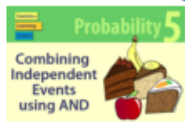
This shows how to calculate probability values involving NOT and OR.

## Video: Mutually Exclusive Events



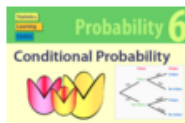
This video clarifies what an outcome is and what an event is, and what it means for two events to be mutually exclusive.

## Video: Combining Independent Events using AND



This video introduces events that combine different outcome, and use a dot diagram a tree and a table to illustrate a simple example.

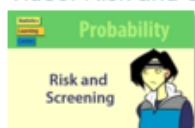
## Video: Conditional Probability



This video teaches about independence and conditional probability.

# Risk

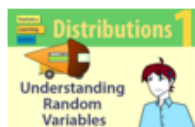
Video: [Risk and Screening](#)



This video teaches about risk and the probabilities associated with screening tests.

# Random Variables and Probability Distributions

Video: [Understanding Random Variables](#)



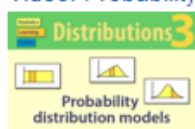
This video explains what a random variable is, and how they are used.

Video: [Discrete Random Variables](#)



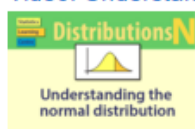
This video explains some properties of discrete random variables.

Video: [Probability Distribution Models](#)



This video explains what a distribution is, and gives examples of discrete (binomial and poisson) distributions and continuous (normal and triangular) and how they are used.

Video: [Understanding the normal distribution](#)



This video teaches what the normal distribution is and why it is so useful. You may wish to view it in two parts.

# Time Series

Video: [Understanding Time Series Analysis](#)



This video introduces the key ideas in Time Series Analysis - trend, seasonality, variation.

Video: [Time Series using iNZight](#)



This video introduces the key ideas in Time Series Analysis - trend, seasonality, variation.

Video: [How to write a times series \(forecasting\) report](#)



This video gives a structure for writing a Time Series Report.

Video: [Time series report, Example](#)



This is an example of a time series analysis.