Probability and statistics

Statistics

- For quantitative and graphical ways to describe data such as the mean, median, mode, standard deviation, range, quartiles, histograms, bar graphs and boxplots.
  Introduction to descriptive statistics (pdf, 2MB)

Probability

For a basic introduction to probability theory you may wish to work through these booklets:

- For an introduction to the foundational concepts of probability $P(A)$ such as sets and sample space, complementary and mutually exclusive events, conditional probability $P(A|B)$ and independence.
  Basic concepts in probability (pdf, 147KB)
  Introduction to probability theory (pdf, 2MB)

- For techniques involved in probability related calculations: counting principles, factorials, permutations, combinations, binomial coefficients ${}^{n}C_{r}$ or $\binom{n}{k}$, and the binomial theorem.
  Counting techniques (pdf, 1.9MB)

- For more advanced concepts and techniques in probability including: the axioms of probability, tree diagrams, sampling with and without replacement, and an introduction to binomial probability.
  Further probability theory (pdf, 2MB)

Distributions

For help with the various distributions that are used in probability and statistics:

- For an introduction to the binomial distribution, factorial notation, working with binomial probabilities, and the normal approximation to the binomial distribution.
  The binomial distribution (pdf, 2.1MB)

- For an introduction to the normal distribution, the Central Limit Theorem, the standard normal curve $N(0,1)$ and z-scores, finding areas under the normal curve, and transforming between raw scores and z-scores.
  The normal distribution (pdf, 2.1MB)