THE UNIVERSITY OF MELBOURNE

Sampling Distributions

Concept Review

- Sampling distribution of a statistic is the distribution of the statistic over all possible random samples of the same size from the same population.
- The sampling distribution of the sample mean is:
  - (i) normally distributed if the sampled population is normally distributed, or
  - (ii) approximately normally distributed if the sampled population is not normally distributed but the sample size is large ($n \geq 30$).
- The confidence interval is a range of values that is likely to contain the population parameter with a certain level of confidence.
  - (i) If the population standard deviation (σ) is known and the sample mean is (approximately) normally distributed, use the z-distribution.
  - (ii) If the population standard deviation (σ) is unknown but the population is (approximately) normally distributed, use the t-distribution.