6.5: Chapter 6 Key Terms

Confidence Interval (CI)

an interval estimate for an unknown population parameter. This depends on:

- the desired confidence level,
- information that is known about the distribution (for example, known standard deviation),
- the sample and its size.

Confidence Level (CL)

the percent expression for the probability that the confidence interval contains the true population parameter; for example, if the CL = 90%, then in 90 out of 100 samples the interval estimate will enclose the true population parameter.

Degrees of Freedom (*df*)

the number of objects in a sample that are free to vary

Error Bound for a Population Mean (EBM)

the margin of error; depends on the confidence level, sample size, and known or estimated population standard deviation.

Error Bound for a Population Proportion (EBP)

the margin of error; depends on the confidence level, the sample size, and the estimated (from the sample) proportion of successes.

Inferential Statistics

also called statistical inference or inductive statistics; this facet of statistics deals with estimating a population parameter based on a sample statistic. For example, if four out of the 100 calculators sampled are defective we might infer that four percent of the production is defective.

Normal Distribution

notation: $X \sim N(\mu, \sigma)$. If $\mu = 0$ and $\sigma = 1$, the RV is called **the standard normal distribution**.

Parameter

a numerical characteristic of a population

Point Estimate

a single number computed from a sample and used to estimate a population parameter

Standard Deviation

a number that is equal to the square root of the variance and measures how far data values are from their mean, on average; notation: s for sample standard deviation and σ for population standard deviation

Student's *t*-Distribution

investigated and reported by William S. Gossett in 1908 and published under the pseudonym Student; the major characteristics of this random variable (RV) are:

- It is continuous and assumes any real values.
- The pdf is symmetrical about its mean of zero.
- It approaches the standard normal distribution as n get larger.
- There is a "family" of *t* distributions: each representative of the family is completely defined by the number of degrees of freedom, which depends upon the application for which the t is being used.