

# **CAS 105 1.0 Introduction to Statistical Modelling**

## **Certificate in Applied Statistics (CAS)**

### **Institute of Applied Statistics Sri Lanka (IASSL)**

#### **Course Outline**

**(allocated time – 10 hours)**

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#### **Overview**

An Introduction to Statistical Modelling course introduces students to the basic concepts, principles, and techniques of statistical modelling. The course covers topics, including correlation and simple linear regression. The course aims to provide students with a strong foundation in statistical modelling and its applications and develop their analytical and problem-solving skills.

#### **Course Content**

- Introduction to Statistical Modelling:
  - The purpose of statistical modelling
  - Types of statistical models
  - Assumptions and limitations of statistical models
- Introduction to Correlation:
  - Definition and types of correlation
  - Measures of correlation:
    - Pearson's correlation coefficient,
    - Spearman's rank correlation coefficient
  - Scatter Plots and Properties of correlation coefficients
  - Hypothesis testing for correlation
- Simple Linear Regression:
  - The linear regression model
  - Estimation of regression coefficients
  - Testing for the significance of regression (ANOVA) and its parameters
  - Residual analysis
  - Diagnostics