

ANL321 Statistical Methods

Level: 3

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JULY

Synopsis:

ANL321 Statistical Methods explores the mathematical foundation of statistical inference and approaches. It begins with an introduction to basic mathematics for statistics, and then, to random variables and probability, the formulation of estimators and their properties, and regression models and their different variations. Students will learn statistical design thinking towards the estimation and identification of causality. They will learn the various pitfalls in regressions and the formulation of appropriate regression solutions to address various business and policy challenges. Students are expected to have mathematical foundations in calculus and should have attained a good grade in an undergraduate Statistics module (e.g., BUS105) as this course assumes fundamental knowledge in Statistics.

Topics:

- Probability
- Random Variables
- Measures of Central Tendency and Dispersion
- Measures of Dependence
- Elements of Asymptotic Theory
- Confidence Intervals and Hypothesis Testing
- Least Squares Regression Analysis
- Least Squares Regression Models
- Large Sample Properties and Inference in Linear Regression
- Multicollinearity, Model (Mis)Specification, and Heteroskedasticity
- Kernel Density Estimation and Kernel Regression
- Introduction to Maximum Likelihood Estimation

Textbooks:

JMP Pro for Academic Multi-Use (JMP18) 18th JMP Statistical Discovery LLC
ISBN-13: SW-0254

ANL321 Study Guide (UDC - SUSS) SUSS
ISBN-13: SG-1642

Learning Outcome:

- Explain relevant concepts used in the various statistical methods
- Describe the relevant data and assumptions to be used for the various statistical models
- Determine the relevant statistical methods to use for a given business problem and data structure
- Appraise the advantages and disadvantages of using various statistical methods
- Implement the various statistical methods using appropriate statistical software
- Interpret the results of using the various statistical methods
- Evaluate the results of using the various statistical methods

Assessment Strategies - Regular Semester (Daytime Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	PARTICIPATION 1	10
	TUTOR-MARKED ASSIGNMENT 1	20
	GROUP BASED ASSIGNMENT 1	20
Overall Examinable Components	Written Exam	50
Total		100

*The information listed is subject to review and change.