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B.Com Honours

Semester IV

Calicut University

STATISTICAL SOFTWARE FOR DATA ANALYSIS

Course Code: COM4FV110 • Module 1 Notes

Module I: Introduction to Statistical Software & Study Design

Provides foundational knowledge for designing empirical research studies, constructing reliable questionnaires, establishing codebooks, and operating IBM SPSS Statistics.

Unit 1: Study Design, Measurement Scales, & Questionnaire Construction

1. Measurement Scales: Nominal (categories), Ordinal (rankings), Interval (equal distance, arbitrary zero), Ratio (true zero).

2. Reliability & Validity: Reliability measures internal consistency; Validity evaluates whether instrument measures intended construct.

3. Questionnaire Design: Closed-ended vs open-ended questions, 5-point Likert response formats, avoiding double-barreled or biased wording.

Unit 2: Preparing a Research Codebook

Codebook maps survey responses into machine-readable numeric formats. Assigns short variable names (e.g., q1_age), numeric codes for categorical choices (1=Male, 2=Female), and missing value codes (99).

Unit 3: IBM SPSS Navigation & Interface Overview

SPSS windows: Data Editor (Data View & Variable View), Output Viewer (.spv), and Syntax Editor (.sps).
Toolbar navigation, dialogue boxes, and built-in help systems.

Practical Case Framework (Research Study Codebook Specification Matrix): Construct a standardized codebook mapping survey items into SPSS variable formats.

Standardized Research Codebook Reference Table:

Variable ID	Full Variable Label	Response Format / Options	SPSS Data Type & Measurement Scale
resp_id	Respondent Identification Number	Unique integer (1001, 1002...)	Numeric / Nominal Scale
gender	Gender Identity	1 = Male, 2 = Female, 3 = Non-binary	Numeric / Nominal Scale
education	Highest Qualification Level	1 = High School, 2 = Graduate, 3 = Post-Graduate	Numeric / Ordinal Scale
income	Monthly Gross Income (INR)	Exact continuous numeric amount	Numeric / Ratio Scale
sat_q1	Service Quality Satisfaction Item 1	1 = Strongly Disagree to 5 = Strongly Agree	Numeric / Scale (Interval)

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