**Detailed Plan of Basic Statistics (Use EXCEL/SPSS for all illustrations)**

This course consists of 6 modules, each spanning one week (150 minutes). Each module is made of 5 lessons, each of which (spanning 30 minutes) is split into 2-4 videos. Each of the first 4 lessons in a module will have around 5 formative quizzes. The last lesson is a review lesson and will have 8 summative quizzes, where 2 are taken from each of the preceding lessons in that module.

Module 1: Data Types

Lesson 1, Video 1: Data – definition and description

Lesson 1, Video 2: Data types

Lesson 1, Video 1: Case, variable and data matrix

Lesson 2, Video 1: Variable types: Categorical, numerical

Lesson 2, Video 2: Variable types: Nominal, ordinal, discrete, count, continuous

Lesson 3, Video 1: Data: univariate and multivariate

Lesson 3, Video 2: Data: time series, cross-sectional (IID), spatial

Lesson 4, Video 1: EXCEL

Lesson 4, Video 2: CSV

Lesson 5, Video 1: Demo with EXCEL/CSV

Lesson 5, Video 2: Review

Module 2: Presentation of Data

Lesson 1, Video 1: Graphical – purpose and usefulness

Lesson 1, Video 2: Line diagram

Lesson 1, Video 3: Bar diagram, pie chart

Lesson 2, Video 1: Frequency table

Lesson 2, Video 2: Histogram with examples

Lesson 3, Video 1: Examples

Lesson 3, Video 2: More examples

Lesson 4, Video 1: Scatter plot, contingency table

Lesson 4, Video 2: Contiguous bar, pie, Histogram, etc.

Lesson 5, Video 1: Review with examples

Lesson 5, Video 2: More examples

Module 3: Measures of central tendency

Lesson 1, Video 1: The concept and the mean

Lesson 1, Video 2: More on mean with examples

Lesson 2, Video 1: The median

Lesson 2, Video 2: Mode, etc., with examples

Lesson 3, Video 1: The percentile, quartile, etc.

Lesson 3, Video 2: Examples

Lesson 4, Video 1: Properties, etc.

Lesson 4, Video 2: More examples

Lesson 5, Video 1: Review with examples

Lesson 5, Video 2: More review with examples

Module 4: Measures of dispersion

Lesson 1, Video 1: The concept

Lesson 1, Video 2: Range and IQR

Lesson 2, Video 1: Variance and standard deviation

Lesson 2, Video 2: Mean absolute deviation

Lesson 3, Video 1: Box-plot

Lesson 3, Video 2: More on box-plot with examples

Lesson 4, Video 1: CV

Lesson 4, Video 2: Examples

Lesson 5, Video 1: Review with examples

Lesson 5, Video 2: More review with examples

Module 5: Moments

Lesson 1, Video 1: The concept

Lesson 1, Video 2: Raw and central moments

Lesson 2, Video 1: Relationship with mean and variance

Lesson 2, Video 2: Examples

Lesson 3, Video 1: Skewness, a measure of symmetry

Lesson 3, Video 2: Examples

Lesson 4, Video 1: Kurtosis, a measure of peakedness

Lesson 4, Video 2: Covariance as a product moment

Lesson 5, Video 1: Review with examples

Lesson 5, Video 2: Review with more examples

Module 6: Measures of association

Lesson 1, Video 1: Paired data, concept of association via plot

Lesson 1, Video 2: Covariance as a measure of association, Linear correlation coefficient

Lesson 2, Video 1: Spearman’s rank correlation

Lesson 2, Video 2: Examples

Lesson 3, Video 1: Kendall’s tau

Lesson 3, Video 2: Examples

Lesson 4, Video 1: 22 contingency table, odds-ratio

Lesson 4, Video 2: Examples, possible extension to contingency table

Lesson 5, Video 1: Review with examples

Lesson 5, Video 2: Review with more examples