Basic Concepts of Statistics (Meaning, characteristics and uses of Statistics), Study designs(cross sectional vs time series), errors(systematic, random, sampling), Branches of Statistics (Descriptive and Inferential
Statistics), sample, population, Group and ungroup data, dataset, Types of Variables (Qualitative & Quantitative, Discrete and Continuous)
**Exercise questions: Chapter no.1 from David Anderson**
Measurement scales. Summarization of qualitative and quantitative data into tabular and graphical form Graphical Representation (Bar chart, Pie-chart)
**Exercise questions: Chapter no.2 from David Anderson**
Measures of Central Tendency (ungroup data), Mean, median, mode, Trimmed mean [trim % and total trim both school of thought], Quartiles and Percentiles. Dot Plot, Five point summary, Box plot, Outlier detection, Skewness, Pearson's coef of skewness, and Relation between mean, median and mode
**Exercise questions:** 1.1, 1.2, 1.3, 1.4, 1.30 **Walpole**
Measures of Dispersion (ungroup data), Range, Variance, Standard Deviation, IQ-Range, Coefficient of Variation, **Exercise questions:** 1.13, 1.14, 1.17 **Walpole**

Group data: construction of frequency distribution, Percentage frequency, Relative frequency, cumulative Frequency types, mean, variance and Histogram.
**Exercise questions:** 1.18, 1.21,1.22 **Walpole**
Introduction to probability, Set Theory, Tree diagram, Venn diagram (optional), Random Experiment, events (Simple, Composite, equally, mutually, non mutually), Counting techniques (Rule of multiplication, Permutation and Combination).
**Exercise questions**: 2.21 to 2.47 all **Walpole**
Probability of an event, Cross tab from raw data, joint probability table, All laws ( addition, complementation, multiplication, conditional)
**Exercise questions:**
2.53, 2.54, 2.56, 2.58, 2.59, 2.67, 2.76, 2.75, 2.80, 2.83 **Walpole**
Continuation of Probability laws, Independence, Application of Probability rules for two events are added. Also the extension of every rule to k events. .
**Exercise questions:** 2.78, 2.81, 2.86 **Walpole**
Multiplication rule continued, Bayes theorem.
**Exercise questions:** 2.95, 2.96, 2.97, 2.98, 2.99, 2.101 **Walpole**
Bayesian Spam filter for one word and two words problems (equally likely events)