UNIVERSITY OF CAPE COAST
DEPARTMENT OF COMPUTER SCIENCES AND INFORMATION TECHNOLOGY
INF 112: MATHEMATICS FOR COMPUTING II

Lecturer's Name: Gabriel Obed Fosu

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Credits: Three (3)

Term: Second Semester 2017/2018

Course Objective

In this course, the student is introduced to the subject of statistics and probability. It includes the need for qualitative and quantitative analysis and the basic procedures in analysing data. Students would also be introduced to the applications of statistics and probability and how to conduct experiments with probability and statistics.

Course Outline

1. General Introduction: Definitions, mathematics required for statistics, measurement scales and types of data. Population, samples and sampling techniques.
2. Organizing data into summary tables: Arrays and ranges. Frequency Distributions, Relative Frequency Distributions, Percentage Distributions. Grouped and Non-Grouped Distributions.
3. Graphing of Data: bar chart, pie chart, line graph, histograms, polygons, ogives, dotplots, stem-and-leaf display.
4. Measures of central tendency and location: means (arithmetic, geometric, harmonic, weighted), median and mode. Quartiles, Deciles and Percentiles.
5. Measure of dispersion: Deviations (mean, standard, quartile), variance, coefficient of variation. Box-and-Whisker Plot. Skewness and Kurtosis.
6. Probability theory: Experiment, events and sample spaces. Set theory. Probability Axioms. Calculating Probabilities.
7. Calculating rules and Counting: Rules of probability, Conditional Probability. Bayes theorem.
8. Random variables: Discrete and continuous random variables. Mean and variance of random variables. Probability density function and probability mass function.

Assessment

There will be assignments, quizzes and an end of semester examination. Assignments and quizzes form 40% of students total scores while end semester examination forms 60%.

- Quiz 1 will cover sections 1 to 4, on the 26th February 2018.
- Quiz 2 will cover sections 4 to 7, on the 10th April 2018.
- End of semester examination will cover the entire course outline.

Resources

1. Stephen Bernstein and Ruth Bernstein, Element of Statistics, Descriptive Statistics and Probability, McGraw-Hill, 1999.
2. William Mendenhall, Robert J. Beaver, Barbara M. Beaver, Introduction To Probability and Statistics, Brooks/Cole, 2009.
3. Jay L. Devore, Probability and Statistics for Engineering and The Sciences, Brooks/Cole, USA, 7th edition, 2009.
4. Montgomery, D. C. and Runger, G. C., Applied Statistics and Probability for Engineers, 3rd Edition, 1998.
5. Sheldon Ross, Introductory Statistics, 3rd edition, 2010.