

UNIVERSITY OF MADRAS
B.Sc. DEGREE PROGRAMME IN COMPUTER SCIENCE
 SYLLABUS WITH EFFECT FROM 2023-2024

Year: II

Semester: III

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| Elective: Statistics-I (Common to B.Sc.-CS with AI, CS with DS, Software Appl. & BCA) | | 225E3B |
| Lecture Hours: 5 per week | | Credits: 3 |
| Learning Objectives: (for teachers: what they have to do in the class/lab/field) | | |
| Course Outcomes: (for students: To know what they are going to learn) | | |
| <ol style="list-style-type: none"> 1. Know the uses of statistics in society 2. Organize, manage and present data 3. Analyze the statistical data graphically using frequency distribution and cumulative frequency distribution. 4. Analyze statistical data using measures of central tendency, dispersion and location. 5. To understand correlation between continuous variables and association between categorical variables. | | |
| Units | Contents | |
| I | Methods of collection: Complete enumeration – Sample Survey - Primary data - Secondary data sources - Types of variables. Norminal, ordinal and scale data. Presentation of Data: Presentation of data by tables - construction of tables (Univariate and Bivariate) – frequency table and contingency table | |
| II | Diagrammatic presentation: Line diagram, Bar diagrams: Simple, multiple, subdivided and Percentage-Pie chart, comparative pie chart - Graphical representation of a frequency distribution by histogram and frequency polygon and Ogives | |
| III | Analysis of Data (Univariate): Measures of central tendency: Arithmetic mean-Median and Mode choice of an average-characteristic of a good average | |
| IV | Measures of dispersion: Range-Quartile deviation-mean deviation - standard deviation - relative measures of dispersion - Coefficient of Variance | |
| V | Analysis of Data (Bivariate): Correlation- Scatter plot-coefficient of correlation-Pearson's Correlation Coefficient, Spearman's rank correlation coefficient-correlation coefficient for bivariate frequency table- Association of attributes: Chi-square test of independence of attributes | |
| Suggested Readings: | | |
| Books for study: | | |
| <ol style="list-style-type: none"> 1. Gupta, S.C and Kapoor, V. K (2002), <i>Fundamentals of Mathematical Statistics</i>, Sultan Chand and Sons, New Delhi. 2. Goon A.M., Gupta M.K. and Dasgupta B. (2002): <i>Fundamentals of Statistics</i>, Vol. I & II, 8th Edn. The World Press, Kolkata. 3. Irwin Miller, Marylees Miller (2006): <i>John E. Freund's Mathematical Statistics with Applications</i>, (7th Edn.), Prentice Hall International INC. 4. Mood, A.M. Graybill, F.A. and Boes, D.C. (2007): <i>Introduction to the Theory of Statistics</i>, 3rd Edn., (Reprint), Tata McGraw-Hill Pub. Co. Ltd | | |
| Books for reference: | | |
| <ol style="list-style-type: none"> 1. Saxena H.C.: <i>Elementary Statistics</i>. S. Chand & Co., 2009. | | |