

STAT 305 D Exam 1 Topics

1. Introductory concepts (ch. 1-2)
 - a. Populations and samples
 - b. Validity, accuracy, and precision of measurement
 - c. kinds of data: categorical (qualitative), numeric (quantitative), discrete, continuous, univariate, multivariate.
 - d. Variables; treatment, blocking variable, concomitant variable, factor, response, predictor
 - e. Observational vs experimental studies
2. Study design (ch. 1-2)
 - a. Designs: completely randomized design, factorial design, block design
 - b. Simple random sampling and randomization
3. Descriptive statistics (ch. 3)
 - a. graphical and tabular displays: dot diagrams, stem and leaf plots, frequency tables, histograms, bar plots, boxplots, scatterplots, quantile-quantile plots, theoretical QQ plots (especially normal QQ plots)
 - b. quantiles
 - c. Numerical summaries: mean, median, mode, variance, standard deviation, range, IQR
 - d. Statistics vs. parameters
4. Relationships between and among variables (Ch. 4)
 - a. Fitting a regression line with least squares
 - b. Checking model usefulness with correlation and R^2
 - c. Checking model validity with residual plots
 - d. Analyzing and interpreting computer output for fitted polynomial regression and multiple regression equations.