MATH 236 – Elements of Statistics 2 – SYLLABUS

Department of Mathematics
Millersville University

Description

An extension of MATH 130 or MATH 235. Includes estimation, hypothesis testing, design of experiments with analysis of variance, regression analysis, covariance analysis and nonparametric approaches. Includes experiences using a variety of computing devices. A substantial methods course for any major who needs to use

projects, and examinations.

Use of Technology

Students will be required to use one or more statistical computing packages (e.g. R, Minitab, StatCrunch) to solve problems. A scientific calculator will also be helpful.

Topics

Review of statistical inference
    Estimating Parameters and Determining Sample Sizes–
        Mean (one sample and two sample problems)
        Proportions (one sample and two sample problems)
    Hypothesis Testing – One sample and two sample
        Statistical hypotheses
        Type I and Type II errors
        Logic of statistical hypothesis testing
        Tests pertaining to means
        Tests pertaining to proportions
        p-values
Categorical Data Analysis
    Contingency tables
    Chi-square tests
Analysis of Variance models
    Designed Experiments
    Randomized block designs
    Two-factor factorial experiments
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Designed Experiments
Randomized block designs