MAT 212

Introduction to Statistics

Ursuline College Mathematics Departments

Course Description:  This course is a study of elementary concepts and procedures basic to scientific, social, psychological and other areas: frequency distributions, normal distributions, measures of central tendency and dispersion; probability, samples and populations; correlation and regression; chi-square test; analysis of variance, hypothesis testing. A working knowledge of basic algebra is needed.

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Knowledge:  The student will

- Understand the general aims of various statistical procedures
- Understand the significance of numerical values for broad generalizations
- Be able to compare and contrast statistical procedures in selection of possible methods
- Be able to interpret graphs and statistical table
- Become familiar with basic concepts and applications of statistics to as high degree of sophistication as possible
- Improve basic number skills of arithmetic and algebra
- Improve recording and analyzing procedures

Attitudes and Values:  The student will

- Appreciate the importance of a basic knowledge of statistics
- Be able to discern relationships in values and procedures
- Feel comfortable with the basic concepts of statistics
- Recognize advantages and disadvantages of computer
- Appreciate the ramifications of probability and statistics


SPSS Guide to Data Analysis by Norusis

Recommended but not required:  Workbook to accompany Statistics by Witte and Witte

Typical Course Schedule

Jan.:  Describing data; graphs and measures of central location

Lab #1:  Introduction, creating graphs
Feb.: Measures of variability
Lab #2: Computing measures of location and variation

Feb.: The normal distribution
Lab #3: Z scores and entering data

Feb.: Using Z scores
Lab #4: Correlation and prediction

Mar.: Correlation
Lab #5: SPSS midterm

Mar.: Prediction
Lab #6: One sample t-tests

Mar.: Random Samples, Probability rules
Lab #7: Two sample t-tests; matched and unmatched pairs

Mar.: Central Limit theorem and hypothesis testing
Lab #8: Probability values and significance levels

Apr.: One tailed hypothesis tests, type I and type II error
Lab #9: ANOVA

Apr.: Confidence Intervals
Lab #10: Chi-square tests

Apr.: The t-distribution
Lab #11: Enter data for project
Lab #12: Enter data for project

**May**: ANOVA and Chi-square tests

Lab #13: Enter data for project