DS 705 –Statistical Methods

Topics & Concepts

**Inference Procedures**

Shapiro-Wilk test for normality

Levene test for equal variance

Welch two-sample *t*-test and interval

Pooled two-sample *t*-test and interval

Wilcoxon rank sum test for medians

CI for difference in medians

Paired *t*-test and interval

Wilcoxon signed-rank test for the median of differences

CI for the median of differences

Sign test for medians

ANOVA (assume equal variance)

Welch ANOVA (no need to assume equal variance)

Randomization test for ANOVA (simulation)

Kruskal-Wallis

Tukey-Kramer multiple comparison procedure

Multiple comparisons by bootstrap

Bonferroni correction

Kruskal-Wallis multiple comparisons

z-tests and intervals for one proportion

z-tests and intervals for difference of proportions

Chi-square test of independence

Chi-square test of homogeneity

Fisher Exact Test

Chi-square test of goodness-of-fit

CI for an odds ratio

Hypothesis tests for regression coefficients

Confidence intervals for regression coefficients

Confidence intervals for a mean response a given value of *x*

Prediction interval for an individual for a given value of *x*

MANOVA

Linear Discriminant Alaysis

**Terms, concepts, and other procedures**

Graphs – histogram, boxplot, normal probability plot, scatterplot

Two-way tables

Odds ratio

Level of significance

*P*-value

Type I and Type II error

Power

Scatterplot

Pearson correlation coefficient, *r*

Coefficient of determination, *R*2

Simple and Multiple linear regression (and model assumptions)

Residuals

Multicollinearity

VIF

Logistic regression

Interpreting regression coefficients

Factor analysis

Custer analysis