PHARMACOMETRICS PHL 541 (3 + 0)

Course Description:

The course deals with the study of the integrated principles and practice of biostatistics as applied to pharmacological and toxicological research and related pharmaceutical sciences. The course includes concepts of normal probability distribution, hypotheses testing, analysis of variance, linear and curvilinear regression, correlation analysis and analysis of frequencies as applied to pharmacological and toxicological research and pharmacoepeal criteria.

Course content

	Hours
Introduction & Descriptive Statistics:	**3**

Tables: diagrams; numerical measures of location and dispersion.

Probability Distributions:	**6**

Definition; expectation; discrete and continuous distributions; binomial, Poison and normal distributions.

Tests of Hypotheses:	**3**

Approach; terminology; procedure; hypothesis tests for a population mean and proportion.

Comparison of two Means and two Variances:	**3**

Assumption; hypothesis tests for the quality of two population means (two sample t-test and paired t-test) and more than two means; hypothesis tests for the quality of two population variances (F-test) and more than two variances; confidence intervals in relation to hypothesis tests.

Comparison of Several Means "Analysis of Variance":	**6**

General concepts; useful terms; one-way and two-way analyses of variance more complex designs for parametric and non-parametric variables with post-ANOVA tests.

The Chi-Square Test:	**3**

Application; definition of the X^2 statistic; hypothesis test for the independence of two variables in an r x c contingency table; the four fold table.

Linear Regression and Correlation: **6**

Diagrams; determination of the linear regression line; assumptions; using the estimated regression line to make inferences about A and B and predict values of y; definition, properties and interpretation of and inferences about the correlation coefficient; extensions of simple linear regression and correlation; validation of assumptions in regression analysis.

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Distribution-Free Methods: **6**

Non-robust analysis; data transformations; Wilcoxon rank sum test; Wilcoxon signed rank test; Spearman's rank correlation coefficient.

Computer programs in statistics. **4**

Examination **2**