CH-324 Statistics for Chemists

Credit Hours: 3-0

Prerequisite: Nil

Course Objectives

1. To acquaint students with basic concepts of statistical techniques for chemistry data. To teach students about design of experiments; data processing by multivariate analysis; use of modern software for the application of mathematical and statistical methods.

Students will be able to apply the new skills to real problems concerning applications and research.

Course Outcomes

2. At the end of the course, students have the following expertise: design of experiments; data processing by multivariate analysis; use of modern software for the application of mathematical and statistical methods.

Course Contents

3. Hypothesis Testing and Confidence interval. Quality control methods. Simple and multiple regression analysis. One way and two way ANOVA. Factorial factor design. Response Surface Methodology. Principal component analysis, Dsicriminat Analysis, Cluster Analysis, Partial least squares.

Recommended Books

4. Miller, J., & Miller, J. C. (2018). Statistics and chemometrics for analytical chemistry. Pearson education.

5. Kowalski, B. R. (Ed.). (2013). Chemometrics: mathematics and statistics in chemistry (Vol. 138). Springer Science & Business Media.

6. Otto, M. (2016). Chemometrics: statistics and computer application in analytical chemistry. John Wiley & Sons.