

Program: Chemistry (15025012071P6)

Course: EXPERIMENTAL DESIGN AND OPTIMIZATION

Code: PPGQU0064

Workload: 45 hours

Credits: 03

Syllabus:

Fundamentals of Chemometrics; Basic Statistics; Experimental Optimization Methods; Two-level and fractional factorial design; Least Squares Modeling and Mixture Modeling; Response Surface Methodology; Simplex Optimization; Modern Experimental Optimization Methods.

Bibliography:

PEREIRA-FILHO, E. R. Factorial Planning in Chemistry: Maximizing Result Acquisition. Ed. EdUFSCAR, 2015.

NETO, B. B.; SCARMINIO, I. S.; BRUNS, R. E. How to Design Experiments – Research and Development in Science and Industry, 2nd ed., Editora da Unicamp, Campinas (SP), 2003.

BRUNS, R. E.; SCARMINIO, I. S.; NETO, B. B. Statistical Design – Chemometrics, Elsevier Science, 2006.

BOX, G. E. P.; HUNTER, W. G.; HUNTER, J. S. Statistics for Experimenters: Design, Discovery and Innovation, 2nd ed., John Wiley & Sons, New Jersey, 2005.

BRERETON, R. G. Chemometrics: Data Analysis for the Laboratory and Chemical Plant, John Wiley & Sons, Chichester-UK, 2003.

MONTGOMERY, D. C. Design and Analysis of Experiments, John Wiley & Sons, New York, 2001.

MASSART, D. L.; VANDEGINSTE, B. G. M.; BUYDENS, L. M. C.; JONG, S. Handbook of Chemometrics and Qualimetrics: Part A, Elsevier Science B.V., Amsterdam, 1997.

CORNELL, J. A. Experiments with Mixtures, John Wiley & Sons, New York, 2002.

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