Name of the course	Chemometics
Number of instruction hours	20
Outline of course/module content	Variable selection. Principal components. Random forests. Experimental design. Two level designs. Fractional designs. Muli-level designs. Mixture designs. Modelling. Multiple and polynomial regression. Non-linear regression. Steepest decent and Marquardt methodology. Artificial intelligence. Artificial neural networks. Feed forward, recurrent and self-organized topology. Non supervised and supervised methodology. Fuzzy logic. Conventional and fuzzy set theory. Cluster analysis. Patten recognition. Optimization methods. Simplex. Multi criteria decision making. Derringer function. Pareto optimality. Global search strategies. Genetic algorithms. Simulated annealing. Ant colony. Quantitative structure property relationship. Hybrid systems. Principal component - artificial neural networks. Genetic algorithms – artificial neural networks. Neurofuzzy systems. Signal processing. Fourier transform. Smoothing and filtering. Signal enhancement. Deconvolution. Multivariate and nonlinear calibration. Internal and external validation. Measurement uncertainty.
Description of instruction methods	Lectures, seminars, consultations.
Description of course/module requirements	Exam, seminar presentation.