SBIM3100 Elementary quantitative analysis

[22.5h]

Teacher(s): Bernard Tilquin
Language: French
Level: Third cycle

Aims

Analytical chemistry is a branch of chemistry and includes both qualitative and quantitative analysis. This lesson deals entirely with quantitative analysis and includes the analysis of organic material with modern techniques. A true analyst has a knowledge of the methods and instruments used for analysis. He understands the principle and may modify analytical methods to solve a particular processes, he is a well-trained chemist.
This introductory analytical chemistry course is presented for non chemistry students so the lesson contains the depth required by advanced undergraduates.

Main themes

A quantitative analysis provides data regarding the chemical composition of matter :quality control ,amount of valuable constituent, research,#.A few concepts upon quantitative chemistry a reviewed as quantitative reactions within chemical equilibrium, acid-base equilibria , EDTA titrations, REDOX titrations, # The goal is also to provide a sound physical understanding of the principles applied in chemistry and related disciplines.

Content and teaching methods

Units and concentration-analytical balance-acid-base titrations-advances topics in acid-base chemistry in non-aqueous solutions-electrodes ,electrogravimetry , coulometric determination-voltammetry-atomic spectroscopy -high-performance liquid chromatography -radioactivity DIDA-#.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

The text is designed for undergraduate students and presents modern quantitative chemistry as a dynamic part of present-day chemical science and is intended to serve as a consistenly helpful learning partner for the student who is majoring in another discipline.
The essential background of chemistry is required : some basics of organic chemistry , stoichiometry , solution concentration, mass action effect ,thermodynamic equilibrium constant, units ,oxidation-reduction reactions, partition coefficient, ion exchange,#
No time is given for solving problems, no assistant professors to help students , however at the end of this lesson , questions and answers to all problem are available.
For examination , students have the choice.

Other credits in programs

ESP3DS/TI Diplôme d'études spécialisées en santé publique (santé au travail - toxicologie industrielle)