

Faculty of Medicine



FARM2143 CHEMISTRY ANAL & ANALYZES INSTRUM

[60h+180h exercises] 15 credits

This course is taught in the 1st and 2nd semester

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

Aims

The fast development of the chemical analysis is accompanied by a deepening of the use of the molecular physical properties, bases of chemistry. For a selection of the adequate instrumental technique and its control, a knowledge of these bases is essential. Choices and control of the technique are the first objectives. The research of the systematic errors due to interferences leads to the "analytical step".

Main themes

The essence of teaching relates to the principles of the methods of the quantitative chemical analysis, the various chapters include the methods of fractionation including the electrophoretic and chromatographic methods, some electroanalytic methods, the quantitative spectroscopic methods and proportionings in not-aqueous medium. Various techniques are briefly exposed to allow the choice of the analytical step (X-ray, thermo...). many problems (personal work) introduce gradually with the rigour of the quantitative reasoning (problems with corrected complete or final result). Directed work is devoted essentially to the experimental data processing. With practical work, methods of titration in not-aqueous medium, techniques of potentiometry, electrochemistry and spectrometry are tested in personalized work. Work by small group is proposed for the methods of separation. The experiments are followed of a relationship with scientific comment.

Content and teaching methods

The diversity of the techniques suggested with the theoretical course led to a confusion which can be avoided by the practice. The integration of the theoretical course and practical work makes it possible to illustrate the course, to clearly seriate the potentialities of the techniques, to seek independent complementary methods in their principle. To the laboratory, the experiments introduced by the theoretical course are followed of a necessary personal synthesis. Questions and problems invite to the reflexion. Data processing is a tool essential to work practise and allows to the students the personal revision reasoning, the virtual duplication of experiments, the search for information and facilitates the experimental data processing. The consultation of books of reference is essential (library). The latest quotations are devoted to the answer to the questions of the students (all the course is considered, integration of the various topics). The personal initiative of the student is required, part of the course is reserved for the discussion following the remarks of the students.

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

Program candidature in chemical analysis (total methods), course of physics and physical chemistry. The level of knowledge (theory and problem) reached by the student is evaluated at the time of an oral examination. The participation in the exercises is obligatory and the final result obtained by considering the whole of these meetings is the subject of a separate evaluation. Documentation, notes of course and TP, library 1 assistant/40 students; 1 technician/80 students Subsidy per hour studying + programming of the material to maintain or renew the number of students (pharmaciens+toxicologists) is very high and the personal contacts are very heavy like charges not entered. The students can meet the members of the team without any restriction. Books of reference: - Quantitative Chemical Analysis, D.C. Harris (Freeman) - chemical Analysis, F and A. Rouessac (Dunod)

Programmes in which this activity is taught

ESP3DS Diplôme d'études spécialisées en santé publique
ESP3DS/ST Diplôme d'études spécialisées en santé publique (santé au travail)

Other credits in programs

FARM21	Première année du grade de pharmacien	(15 credits)	Mandatory
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