UCLouvain

lbir1341

2021

Laboratories, seminars and integrated practice of analytical chemistry

5.00 credits	30.0 h + 45.0 h	Q1

Teacher(s)	Dupont Christine (coordinator) ;Huybrechts Thibaut (compensates Dupont Christine) ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	*The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Learning outcomes	
Evaluation methods	Continuous evaluation (laboratory notebook keeping, individual and group reports, intermediate tests) (75% of final grade). Oral test mainly related to the integrated exercises at the end of the semester (25% of final grade) No examen in January (possibility of an exam in August, limited to the oral test)
Teaching methods	Resolution of exercises and discussion of concepts in group; feedback on laboratory reports. Laboratory practice, alone or in team of two or four students, and mentoring sessions to accompany planning of the work. In reason of the limited number of places in classrooms this year (COVID-19 crisis), some of these activities may be carried out remotely.
Content	Seminars (part B): Overview of analytical chemistry - Physico-chemistry of electrolyte solutions - Redox reactions and analytical applications - Membrane potential and potentiometric analytical methods - Precipitation and equilibria, gravimetric analysis - Acid-base reactions and analytical applications - Volumetry and titrimetry. Laboratory practice (part A and C): Volumetric and gravimetric analysis, direct and indirect potentiometric methods, use of analytical kits. The program is designed in such a way that: - It illustrates the course LBIR 1349 - It develops the critical mind towards quality of results (based on statistical tools acquired in other courses) - It ensures the progressive acquisition of autonomy in the work: application and discussion of protocols, comparison of different analytical methods, adaptation of protocols. - It allows the treatment of samples of particular interest for future bioengineers (soil samples, bio-industrial products) First part: analysis of a limestone, analysis of animal food samples (full protocols given) - statistical treatment of the experimental data Second part: integrated exercises: analysis of two systems chosen by the students (protocols must be adapted to each system) - comparison of methods - global balance - communication of results between students
Inline resources	Moodle
Bibliography	Notes et protocoles mis à la disposition des étudiants Informations diffusées via Moodle
Other infos	The course is in direct relationship with LBIR1349 Analytical chemistry 1 Obligatory reference textbook : Skoog et al (2014). Fundamentals of Analytical Chemistry. 9th edition. Cengage Technology Edition
Faculty or entity in charge	AGRO

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Bioengineering	BIR1BA	5	LBIR1212 AND LCHM1211A	🔍