

7.0 credits

30.0 h + 75.0 h

1q

Teacher(s) :	Garcia Yann ; Dupont Christine (coordinator) ;
Language :	Français
Place of the course	Louvain-la-Neuve
Prerequisites :	Precursory courses : Analytical chemistry course (CHM 1321 or equivalent), followed previously or simultaneously
Main themes :	<p>The activities are declined along three axes, designed to illustrate and accompany course CHIM1321 "Analytical chemistry" (or other analytical chemistry course). Please note that the part of the course related to the "integrated practice of analytical chemistry", centred on case studies, may be chosen alone as a part of a teaching program (3 ECTS).</p> <ul style="list-style-type: none"> - Laboratories (guided activities): Practice of standard operations in analytical chemistry: sampling, weighing, volume measurements, standard preparation. Gathering and communicating information: laboratory notebook keeping, treating data and estimating errors, writing reports (in shortened or extended form). Practice of common methods and approaches typical of solid samples. - Seminars: Interactive in-depth discussion of concepts taught in course CHIM1321. Numerical exercises illustrating these concepts. - Integrated practice (case-studies): Work centred on the analysis of an aqueous medium, related to bioengineering, chosen by each group of students. Practice of common analytical methods, with the emphasis put on the complementary nature of methods, and on the evaluation of results (method, protocol, sampling, operator).
Aims :	<p>Knowledge: Operational knowledge of analytical methods. Comparison and command of different analytical methods. Know-how: Training towards a professional application of analytical tools in the laboratory. Evaluation of the performances of analytical methods. Professional approach of the gathering of analytical information. Clever practice of common analytical methods. Attitude: Laboratories: organisation of the work, autonomy, developing critical mind, ability to stand back from results Seminars: active participation to the building of knowledge Integrated practice (case studies): working in team, creativity, curiosity, initiative, conception and execution of a project, awareness of professional practices (use of analytical kits)</p> <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Evaluation methods :	Evaluation : Continuous (laboratory notebook keeping, professional attitude in the laboratory, reports, intermediate tests). Oral examination related to the report of integrated practice exercises.
Teaching methods :	Teaching team : The course accompanies teaching in the frame of the course CHM1321. However, students with equivalent precursory education may be registered for the whole course or only for the part of the course dedicated to "integrated practice" (3 ECTS)
Content :	<p>Seminars: 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: 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 CHIM 1321 - It develops the critical mind towards 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)</p>
Other infos :	Skoog et al (1996). Fundamentals of Analytical Chemistry. 7th edition. Sanders College
Cycle and year of study :	> Bachelor in Bioengineering
Faculty or entity in charge:	AGRO