UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

General Chemistry Laboratory

2223-3-E1301Q084-E1301Q081M

Aims

Knowledge and understanding. At the end of the course the student will have consolidated and deepened basic knowledge (theoretical, technical and methodological) already the subject of theoretical frontal courses of each discipline. Ability to apply knowledge and understanding. At the end of the course the student will be able to correctly interpret the experimental protocols already practiced, to recognize the salient aspects, to collect and process experimental data. Autonomy of judgment. Among the objectives of the course there is the development of a critical vision of the experimental design and of the results achieved. The student must be able to recognize the contexts in which it is appropriate to apply experimental and re-elaboration methods of the data used during the various teaching modules. Communication skills. At the end of the course the student will be able to re-elaborate the experimental data obtained and present them in the most appropriate way (graphs, tables, numerical indexes, etc.). It is expected that the student can describe the results achieved in an appropriate language and with the technical terms typical of each subject area covered by the teaching. Learning ability. The student will be able to correctly interpret experimental protocols similar to those already practically performed, the application of which is required in contexts different from those already faced during practical laboratory experiences. It is also expected that from this experience students will be interested in research activities and greater awareness of their attitudes.

Contents

The experiences of general chemistry laboratory consist of experiments in the field of determination of solute concentration in diluted aqueous solutions using basic techniques of quantitative analytical chemistry.

Detailed program

Acid-base titration of hydrochloric acid with sodium carbonate with methyl orange indicator; Redox titration of

hydrogen peroxide with a solution of potassium permanganate standardized with sodium oxalate; Iodometric titration of commercial sodium hypochlorite (bleach) with sodium thiosulfate; Acid-base pHmetric titration of phosphoric acid in an unknown solution and in coca-cola with sodium hydroxide; Determnination of the isoelectric point of glycine; Colorimetric analysis of a diluted solution of Fe2 +.

Prerequisites

Basic general chemistry and stoichiometry.

Teaching form

Lab experimental activities in equipped labs.

Textbook and teaching resource

slides from the Elearning platfom
M. Bruschi - Stechiometria e laboratorio di chimica generale - Ed. Pearson

Semester

First semester

Assessment method

For the General Chemistry module, as for all LIB teaching modules, there is no possibility of take partial or "module" exams. The method of verifying the entire teaching is a single test written aimed at evaluating the skills acquired for each of the 6 modules that make up teaching.
The written test lasts 2 hours, and takes place in the computer room, using a PC on a computer platform dedicated. The test consists of closed questions (exercises, multiple choice questions) and one single open question, on the disciplinary contents of one of the modules. The closed questions of each module allow you to acquire a maximum of 10 points. The overall result on the closed questions of the 6 modules is converted into a maximum score of 29 (automatically assigned by the system, al end of the test); the open question is worth from 0 to 2 points, awarded following the correction by part of one of the teachers. The open question will be evaluated only upon reaching a minimum score assigned to closed questions. The overall grade is given out of thirty and is obtained by adding the two scores (for "closed" answers and for "open" answers). An overall score ?30.5 allows you to get laude..

Office hours

The teachers will receive by appointment requested by e-mail.

Sustainable Development Goals

QUALITY EDUCATION