INORGANIC ANALYSIS OF SUBSTANCES HAVING PHARMACEUTICAL INTEREST + QUALITATIVE ANALYSIS LABORATORY - Integrated course
5 + 2 CFU (40 + 32 hours) – School of Pharmacy (E24)

Teacher: Alessandro Pedretti, PhD
Department of Pharmaceutical Sciences
Via Luigi Mangiagalli 25, 20133 Milano
Tel. 02 503 19332 e-mail: alessandro.pedretti@unimi.it

Aims
The course, which includes individual laboratory training, gives the student the first opportunity to understand the main methods and the basis of the practical experimental chemistry. In this perspective, the qualitative analytical chemistry theory applied to the analysis of the medicinally and toxicologically relevant inorganic substances, is explained in the classroom (didactic unit of Inorganic Analysis of Substances Having Pharmaceutical Interest) and than it’s put into practice in the laboratory (didactic unit of Qualitative Analysis Laboratory). In this way, the student has the opportunity to apply the theoretical basic arguments introduced by the Analytical Chemistry course, executing many of the identification reactions prescribed by Italian and European pharmacopeias.

Program description
- Introduction to the inorganic qualitative analysis.
- Safety guidelines in chemistry laboratory and hazard prevention.
- Basic laboratory procedures.
- Theoretical aspects of the dissolution and precipitation processes.
- Salt hydrolysis: acid/base properties of anions, cations and salts.
- Analysis of anions.
- Analysis of cations (classical analysis by precipitation of six analytical groups).
- Limit tests: principles reported in F.U.
- Atomic absorption spectroscopy.
- Introduction to the pharmaceutical, toxicological and biochemical properties of the inorganic compounds analyzed during the laboratory work.

Teaching organization
- The course takes place in the first year second semester. The students are expected to have a basic Inorganic Chemistry knowledge.
- The didactic unit of Inorganic Analysis of Substances Having Pharmaceutical Interest consists in lectures preparing the students to experimental laboratory training, which take place in the same time (5 CFU).
- The didactic unit of Qualitative Analysis Laboratory consists in eight individual obligatory laboratory sessions (2 CFU).
- The final exam includes a laboratory evaluation (identification of unknown compounds by 2 analyses) and a written test (13 questions) concerning the theoretical aspects of the qualitative analysis.

Suggested textbooks
- A. Araneo, Chimica Analitica Qualitativa, Casa Editrice Ambrosiana, Milano.
- G. Charlot, Analisi Chimica Qualitativa, Piccin Editore, Padova.
- G. Svela, Vogel’s Qualitative Inorganic Analysis, Edizioni Logman, Harlow.

Reference books
- Farmacopea Ufficiale della Repubblica Italiana.
- European Pharmacopeia.