
COURSE: Analytical Methods for Environmental Analysis

ACADEMIC YEAR: 2017/2018

TYPE OF EDUCATIONAL ACTIVITY: Characterizing

TEACHER: Giuliana Bianco

e-mail: giuliana.bianco@unibas.itwebsite: scienze.unibas.it/site/home.html

phone: 00390971205451

Language: italian

ECTS: 6 lessons

n. of hours: 48 lessons

Campus: Potenza
Dept./School: DIS
Program: Chemical Sciences
(LM54)Semester: II
from 05/03/2018 to
15-30 June 2018

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The course is designed to develop skills in analytical methods employed in environmental analysis. The course covers a wide range of analytical techniques, environmental surveys and monitoring of water, soil, sediment and air.

Practice of liquid chromatography with an emphasis on high performance liquid chromatography (HPLC). Practice of gas chromatography with emphasis in capillary gas chromatography

PRE-REQUIREMENTSNot necessary

SYLLABUS

Choice of analytical method in a chemical laboratory. Organic and inorganic pollutants. Persistent Organic Pollutants (POPs) and the Stockholm Convention. Endocrine disruptors. Soxhlet extraction, accelerated solvent extraction, microwave assisted extraction. Hyphenated analytical techniques LC-MS, GC-MS, CE-MS and ICP-MS, and their application to the analysis of environmental matrices. Methods of Analysis of persistent organic compounds in biological matrices. Methods for determining the fat content and calculating the percentage lipid in the tissues. Analytical methods for water, soil, air and waste analysis. Analytical techniques for the determination of inorganic trace analytes.

TEACHING METHODSTheoretical lessons

EVALUATION METHODSDuring the semester 2 intermediate exams will be organized and a final oral colloquium

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

- Stanley E. Manahan, "Chimica dell'Ambiente", Piccin, Padova
- C. Baird, M. Cann, CHIMICA AMBIENTALE, Zanichelli, Bologna.
- Skoog, West, Holler, Crouch "Fondamenti di Chimica Analitica", Ed. Edises
- Albert T. Lebedev, Comprehensive Environmental Mass Spectrometry, ILM Publications, UK 2012.
- Biagio Gianni, Le analisi chimiche ambientali, I.C.S.A. Ed. Settimo Milanese (MI) 2009.

Materiale didattico: diapositive del corso in formato elettronico

INTERACTION WITH STUDENTS

The teacher is open for discussion and additional teaching during the planned weekly colloquia every day from 4.00 pm to 6.00 pm, by email (giuliana.bianco@unibas.it) or by phone (00390971 205451)

EXAMINATION SESSIONS (FORECAST)¹March-May-June-July-September-October-December 2018

SEMINARS BY EXTERNAL EXPERTS YES x NO ☐**FURTHER INFORMATION**

¹ Subject to possible changes: check the web site of the Teacher or the Department/School for updates.