DIPARTIMENTO DI SCIENZE

COURSE: INSTRUMENTAL ANALYTICAL CHEMISTRY			
ACADEMIC YEAR:2016-2017			
TYPE OF EDUCATIONAL ACTIVITY: (Basic, Characterizing, Affine, Free choice, Other): F			
TEACHER: CASELLA INNOCENZO			
e-mail: innocenzo.casella@unibas.it		website:	
phone:		mobile (optional):	
Language:			
ECTS: (lessons e tutorials/practice) 6	n. of hours: (lessons e tutorials/practice) 48	Campus: Potenza Dept./School: Program:	Semester: II

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The objectives of this course are the acquisition of basic knowledge
about the common and simple instrumentation and principles of the modern applied analytical chemistry.
In particular, the objectives of the course regards the approach of the analytical techniques for the traces of analysis: differential pulse polarography and atomic absorption/emission analysis.
Combination of several sensible analytical techniques with selective techniques based on the chromatography and capillary electrophoresis for the description and configuration of the modern analytical strategies.
Treatment strategies of the samples such as: filtration, digestion, exctraction (i.e., liquid-liquid, solid-liquid, etc.), SPE and ASE preconcentration-purification processes are widely considered.

The cycle of lectures, with numerous numerical approaches, will have the goal to provide the following capabilities:

- Knowledge, capacity and ability to the understanding and to apply the common methods of analysis in real pharmaceutical contexts.

PRE-REQUIREMENTS

The optimal approach of the Course in Instrumental Analytical Chemistry implies to have got the 1st year exams of Pharmacy and knowledge of Analytical Chemistry and Organic Chemistry.

SYLLABUS

1) Heavy metal speciation and their impact in envirnmental contexts. . Normal and differential Polarography.
   Atomic absorption and emission analysis: Flame, graphite, ICP, etc.

2) Capillary electrophoresys, concepts and applications. T

3) On-line detectors in HPLC or GC, based on spectrophotemetry, electrochemistry, conductivity, mass spectrometry, etc.

4) Exctraction methologies: liquid-liquid, solid-liquid, etc. ASE, Soxhlet, SPE, SMPE, etc.

5) Statistical and treatment of the exprimental errors: casual and systematic errors. Analytical parameters: Precision, Accuracy, Linear range, Recovery, etc

TEACHING METHODS

The teaching method is based on the traditional approach: lecture with extensive use of numerical presentation; in addition a large use of graphics is considered.
The course consists of 6 credits of lectures.
An important part involves the use of the traditional approach and the use of software for electronic presentation using Power Point, EXCELL, etc.

EVALUATION METHODS

The evaluation procedures provide a direct comparison phase with students during the cycle of lessons through numerical exercises and questions of topics of interest.

The final and definitive evaluation concerning the verification of the learning state, is based on oral examination with numerical approach to the subject of study.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

- **FONDAMENTI DI CHIMICA ANALITICA.** Skoog, West, Holler. EdiSES, Napoli.
- **ANALYTICAL CHEMISTRY,** G.D. Christian, 5th Ed. Wiley

INTERACTION WITH STUDENTS

EXAMINATION SESSIONS (FORECAST)[1]

24/03/2017; 12/05/2017; 23/06/2017; 27/07/2017; 20/10/2017; 15/12/2017;

SEMINARS BY EXTERNAL EXPERTS YES □ NO □ x

FURTHER INFORMATION

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