

ACADEMIC YEAR: **2017-2018**COURSE:: **SENSORI E METODOLOGIE ANALITICHE AVANZATE
(Sensors and advanced analytical methodologies)**TYPE OF EDUCATIONAL ACTIVITY: **Characterizing**TEACHER : Prof. Dr. **Antonio Guerrieri**e-mail: **antonio.guerrieri@unibas.it**

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Mobile phone:

Language : **ITALIAN**ETCS: **8**

(6 lessons /2 practical lab activities)

n. of hours: **72**

(48 for lessons and 24 for practical lab activities)

Campus: **Potenza**Dept: **Dipartimento di Scienze**CdS: **Laurea Magistrale in****Biotechnologie per la****Diagnostica Medica,****Farmaceutica e Veterinaria****(LM9)**Semester: **II**

(from March 2018

to June 2018, exact

dates to be defined)

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

This unit is focused on the up to date analytical instrumentation. Main topics should include capillary electrophoresis, electrochemical biosensors, array sensors and QCM. Development and analytical characterization of novel devices for diagnostics and their application for real sample analysis.

PRE-REQUIREMENTS

- ✓ **attendance of lectures: HIGHLY suggested**
- ✓ **attendance of lab activities: COMPULSORY**
- ✓ **preparatory exams: Biologia Molecolare Avanzata (BIO/11)**

SYLLABUS

The modern capillary electrophoresis: principles, instrumentation and main applications in analysis.

Sensors. Electrochemical sensors. Biosensors. Microgravimetric sensors. Sensor arrays.

Biomolecules, microbes, cells and tissues as signal transducers in biosensors: principles of actions, kinetics of signal transduction.

Surface modifications in sensor and enzyme immobilization.

Immobilised enzyme biosensors. Immunosensors. Genosensors. Quartz crystal microbalance as novel sensors.

TEACHING METHODS

- **Lectures and Practical Lab. Activities**

EVALUATION METHODS

oral examination with discussion about lab activities

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

lecture notes; lesson slides; lab activity notes

INTERACTION WITH STUDENTS

Conventional approaches (e.g. student welcome) as well as internet ones (e.g. email) for discussions and deepening of lectures and lab activities.

TIMETABLE FOR STUDENT WELCOME

DAY	FROM	TO	LOCATION
MONDAY	17.30	20.30	Professor Office
TUESDAY	17.30	20.30	Professor Office
WEDSNEDAY	18.00	20.30	Professor Office
THURSDAY	16.00	18.00	Professor Office

CALLS FOR EXAMINATION (exact dates to be defined)

Month	Year	Expected Call
February	2018	20
March	2018	20
June	2018	19
July	2018	10
September	2018	25
October	2018	23
December	2018	18

EXAMINATION PANEL:

President: **prof. dr. Antonio Guerrieri**

Member: **prof.ssa Anna Maria Salvi**

Member: **dr.ssa Rosanna Ciriello**

Member: **dr.ssa Giuliana Bianco**

Member: **dr.ssa Fabiana Crispo**

SEMINARS BY EXTERNAL EXPERTS YES ☐ NO ☒

FURTHER INFORMATION
