DIPARTIMENTO DI SCIENZE

Academic Year: **2018-2019**

Course: **ADVANCED DIAGNOSTIC MEDICAL BIOTECHNOLOGY**

TYPE OF EDUCATIONAL ACTIVITY:

Teacher: **Prof. Angela OSTUNI**

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phone: **0971/205453** | mobile:

Language: **ITALIAN**

ECTS: **8** (6 of lessons and 2 of tutorials/practice)	n. of hours : **72** (48 of lessons and 24 of tutorials/practice)	Campus: **Potenza** Dept: **Sciences** Program: **BIOTECNOLOGIE (L2)**	Semester: **I** (from 01/10/2018 to 20/12/2018-20/01/2019)

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

To know, be able to design and illustrate with language appropriateness, an experimental protocol in the framework of innovative technologies in the field of diagnostics applied to human health

PRE-requirements

- You 'must have acquired the knowledge of topics of Advanced Molecular Biology and Cytogenetics

Syllabus

- Preparation, qualitative and quantitative analysis of nucleic acids for molecular diagnostics;
- solid-phase chemical synthesis of oligonucleotides and quality controls. Design and purification of gene probes

• Molecular hybridization: Southern and Northern blotting; Dot-blot; reverse Dot-Blot; in solution hybridization; in situ hybridization, FISH, SKY, CGH.

• DNA Array: preparation, data processing and applications

• Tissue Microarray: principles and applications

• Protein arrays

• Analysis of mutations and polymorphisms by PCR, LCR, restriction analysis, ASO-PCR, OLA, ARMS,DGGE, SSCP, DHPLC

• Molecular analysis in forensic genetics

• Real-Time PCR: design and optimization of an experiment. Qualitative and quantitative applications: Microorganisms search, determination of viral load, mutations and SNP analysis, GMO search, gene expression analysis.

• Methods for sequencing: cycle sequencing, APEX, Pyrosequencing

• Nucleic Acid amplification: NASBA, branched-DNA, LCR

• Diagnostic technology based on DNA methylation

• Prenatal diagnosis by molecular analysis

TEACHING METHODS

The course includes 48 hours of lectures and 24 hours of guided exercises in the laboratory and /or in the classroom

EVALUATION METHODS

The exam consists of an oral test in which it will be evaluated the ability to link and compare different aspects covered during the course.

TEXTBOOKS AND EDUCATIONAL MATERIAL

- DIAGNOSTICA MOLECOLARE NELLA MEDICINA DI LABORATORIO, BALESTRIERI, D'AMORA, GIORDANO, NAPOLI, PAVAN PICCIN
- Teacher's slides
- scientific articles on specific topics

INTERACTION WITH STUDENTS

At the beginning of the course, after describing the objectives, the detailed program and methods of verification, the teacher will indicate the reference texts and the availability of teaching materials. Teacher will collect the list of students, together with name, serial number and email. Teacher will be available for contact with the students at her room by appointment fixed through e-mail .

EXAMINATION SESSIONS

February 26, March 26, June 11, July 16, September 24, October 29, December 10

SEMINARS BY EXTERNAL EXPERTS SI x NO

FURTHER INFORMATION