
COURSE: Advanced genetic technologies

ACADEMIC YEAR: 2019-2020

TYPE OF EDUCATIONAL ACTIVITY:

TEACHER: Prof. Giuseppe Martelli

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website:

phone: +39 0971 205550

mobile (optional):

Language: **Italian**

ECTS: 8
(6 lessons e
tutorials/practice)n. of hours: 72 (48 lessons
and 24 tutorials/practice)Campus: **Potenza**
Dept./School: **Dipartimento di
Scienze**
Program: **Biotechnology for
medical diagnostic,
pharmaceutical and veterinary (**
LM-9)Semester: I
Beginning at
01/10/2018 To
20/12/2018-
20/01/2019)

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The course aims to study, with the support of practical applications, the theoretical basis of the genetic mechanisms that underlie the identification and development of procedures for the characterization, diagnosis and genetic breeding in plants and animals included man. Particular attention will be paid to the study and characterization of metabolic pathways, on the basis of genomics and transcriptomics, for the production of metabolites of pharmaceutical interest and / or nutraceutical in different organisms. The course also includes the study and development of design, on a prototype scale, of innovative bio-based industrial systems.

PRE-REQUIREMENTS

SYLLABUS

Topics :

- Basic genetic concepts
 - Biotechnology: aims and applications
 - Biological systems used in molecular biotechnology
 - Genetic of Population: problems and biotechnological applications
 - Evolution and Speciation
 - The gene variation: genetic mechanisms that create variability
 - The gene regulation: the control of gene expression in eukaryotes systems
 - The DNA repair
 - Molecular Biotechnology of base DNA and RNA: PCR, real time PCR, NGS, microarray
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- Cellular Biotechnology: protoplasts, cell synchronization and Somatic celle Hybridization
 - Advanced Genetic Technologies applied to humans
 - Advanced genetic technologies applied to the environment
 - Advanced genetic technologies for the development of new production chains
 - Structuring and development of design, on a prototype scale, of Bio-Based Innovative industrial systems
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Lab topics :

- Bioinformatics applications for the study and characterization of gene
- Lab of advanced genetic technologies direct to the study and characterization of functional genes.
- Lab of advanced genetic technologies for the study and characterization of structural genes.
- Applications of advanced genetic technology on cell manipulation

TEACHING METHODS

- Lectures and Lab activities

EVALUATION METHODS

- *Oral examination*

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

- Craig et al. - **Biologia molecolare. Principi di funzionamento del genoma** - Pearson
- Weaver R.F. - **Biologia Molecolare**- McGrawn-Hill
- Material provided by the teacher.

INTERACTION WITH STUDENTS

- Receiving time:

Receiving time during the week

	From	To	Place
Monday	9,30	10,30	Office
Tuesday	11,00	13,00	Office
Wednesday			
Thursday			
Friday	11,00	13,30	Office

- *By mail: giuseppe.martelli@unibas.it*

EXAMINATION SESSIONS (FORECAST)¹***Call for examination***

Month	Year	Expected call
February	2020	X
March	2020	X
April	2020	
May	2020	X
June	2020	X
July	2020	X
September	2020	
October	2020	X
November	2020	X
December	2020	
January	2021	X

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

Examination Panel:

Presidente: Prof. Giuseppe Martelli
Componente: Dr. Rocco Rossano
Componente: Prof. Giovanni Salzano
Componente: Prof. Magnus Ludvig Monnè
Componente: Dr. Angelo Bracalello
Componente: Dr. Vittoria Infantino
Componente: Dr. Gianluca Paternoster

SEMINARS BY EXTERNAL EXPERTS YES X NO

FURTHER INFORMATION
