
COURSE: Genetic Biotechnology

ACADEMIC YEAR: **2019-2020**

TYPE OF EDUCATIONAL ACTIVITY:

TEACHER: Prof. Giuseppe Martelli

e-mail: giuseppe.martelli@unibas.it

website:

phone: +39 0971 205550

mobile (optional):

Language:

ECTS: 6
(4 lessons and 2
tutorials/practice)n. of hours: 56
(32 lessons and 24
tutorials/practice)Campus: **Potenza**
Dept./School: **Dipartimento di
Scienze**
Program:Semester: II
(date)
beginning on
02/03/2019 at
31/05/2019-
20/06/2019)

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The Course of Genetic Biotechnology aims to study the theoretical basis of fundamental biological processes based and regulated by DNA and RNA their applications in biotechnology

PRE-REQUIREMENTS

Good knowledge in genetics

SYLLABUS

Concepts of genetics.

Biotechnology: applications and purposes. genetic and biological systems biotechnology.

Concept of evolution and speciation.

Population genetics and its implications in genetic biotechnology.

Genetic mechanisms that create variability: mutation, recombination, transposition.

Molecular biotechnology based on DNA and RNA.

Genetic mechanisms responsible for DNA repair: Restriction and modification.

Gene expression regulation. Structural Units and Functional units of the genome.

Structure and characterization of the gene.

Molecular markers.

Sequencing and DNA structural analysis. Sequencing methods.

Gene Cloning, Vector and Library.

DNA manipulation:

GMO and recombinant DNA.

Mutagenesis.

FISH and GISH.

Methods of gene expression analysis: Differential display, real-time PCR, microarray, NGS.

Genetic biotechnologies applied to the cells: protoplasts and cell synchronization.

Genetic biotechnologies applied to humans.

Genetic biotechnologies applied to the environment.

Genetic biotechnologies for the development of innovative production systems.

Genetic biotechnologies for the development of innovative bio-based industrial systems.

TEACHING METHODS

- Lectures and Lab activities

EVALUATION METHODS

- Oral examination

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

- Weaver R.F. - **Biologia Molecolare**- McGraw-Hill
- Material provided by the teacher.

INTERACTION WITH STUDENTS

- Receiving time:

Receiving time during the week

	From	To	Place
Monday	9,30	11,00	Office
Tuesday	11,00	14,00	Office
Wednesday			
Thursday			
Friday	11,00	15,30	Office

- *By mail*

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	X
October	2020	X
November	2020	X
December	2020	
January	2021	X

Examination Panel:

President: Prof. Giuseppe Martelli

Member Dr. Rocco Rossano

Member: Prof. Giovanni Salzano

Member: Dr. Angelo Bracalello

Member: Dr. Maria Carmela Padula

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

SEMINARS BY EXTERNAL EXPERTS YES X NO

FURTHER INFORMATION
