



UNIVERSITÀ DI PISA

MOLECULAR BIOLOGY

LUCIANA DENTE

Anno accademico	2020/21
CdS	BIOLOGICAL SCIENCES
Codice	069EE
CFU	9

Moduli	Settore/i	Tipo	Ore	Docente/i
BIOLOGIA MOLECOLARE	BIO/11	LEZIONI	84	LUCIANA DENTE

Learning outcomes

Knowledge

The student who completes the course successfully will be able to demonstrate a solid knowledge of the main issues related to Molecular Biology. In particular: - Structure and properties of nucleic acids and proteins. -Mechanisms of protein synthesis and interpretation of genetic code -Transcription in prokaryotes and eukaryotes and associated factors -Regulation of gene expression. -Mechanisms of DNA replication, replicons, enzymes and associated factors. He or she will be aware of modern approaches of recombinant DNA technology and will acquire the ability to perform basic experiments of DNA transformation in bacteria and purification of plasmid DNA.

Assessment criteria of knowledge

- The student will be assessed on his/her demonstrated ability to discuss the main course contents using the appropriate terminology. - In the written exam (1 hour, multichoice and open answers related to the laboratory experiences), the student must demonstrate his/her knowledge of -the structural/chemical properties of nucleic acid and proteins and of the technologies used during the laboratory course. - In the oral exam, the student must demonstrate his/her knowledge of the course material and be able to discuss the reading matter thoughtfully and with propriety of expression.

Methods:

- Final oral exam
- Final written exam

Further information:

Final oral exam 100%

Teaching methods

Delivery: face to face

Learning activities:

- attending lectures
- participation in seminar
- participation in discussions
- individual study
- group work
- Laboratory work
- Bibliography search

Attendance: Advised

Teaching methods:

- Lectures
- Seminar
- laboratory

Syllabus

The course provides notions on the main topics of Modern Molecular Biology and Recombinant DNA technologies. The course approaches the main issues related to the replication of DNA and to mechanisms of gene expression, such as DNA transcription and protein synthesis with a particular emphasis on factors and elements determining its regulation. The second part of the course focuses on the most common biotechnologies used for cloning, amplifying and expressing recombinant DNA. Lastly, issues related to recently discovered epigenetics factors and RNA non coding elements are presented and discussed.



UNIVERSITÀ DI PISA

Bibliography

Recommended books:

- Amaldi F. et al. : Biologia Molecolare
- Lewin B. Krebs -Goldstein -Kilpatrick: GENES X
- Watson J D : MOLECULAR BIOLOGY OF THE GENE-
- Dale - Von Schantz –Plant : “FROM GENES TO GENOMES: Concepts and Applications of DNA Technology”

Updated: 15/09/2020 11:13