COURSE OUTLINE "MOLECULAR MECHANISMS OF EPIGENETICS"

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MOLECULAR BIOLOGY AND GENETICS		
LEVEL OF STUDIES	ISCED LEVEL 6		
COURSE CODE	**MBG621**	**SEMESTER**	6th and 8th
COURSE TITLE	MOLECULAR MECHANISMS OF EPIGENETICS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**HOURS/WEEK**	**ECTS CREDITS**
	2	3

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK ENGLISH FOR ERASMUS STUDENTS
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/418346/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

The overall objective of the course is to provide to the students the theoretical background of the molecular mechanisms of epigenetics.

The objectives of the course are:

- To understand the basic principles of epigenetics
- To understand the various layers of the epigenetics in relation to the architectural organization of chromatin
- To understand how the various epigenetic modifications affect various cell functions.
- To understand the epigenetic background of diseases and cancer.

Learning outcomes

Upon the successful completion of the course, the students will be able to:

- know the basic terms and principles of epigenetics
- understand the role of epigenetics in chromatin organization
- understand the role of epigenetics in various cellular functions
- know the role of epigenetics in various diseases

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking

Working in an interdisciplinary environment *Promoting free, creative and inductive reasoning* *Production of new research ideas*
• Search, analysis and synthesis of data and information, using the necessary technologies • Adaptation to new situations • Teamwork • Production of new research ideas • Project design and management • Exercise of criticism and self-criticism • Promotion of free, creative and inductive reasoning

3. COURSE CONTENT

1. Packaging of DNA
2. DNA methylation
3. Histone modifications
4. Role of the histones' modification enzymes
5. Epigenetic control of cell specific gene expression
6. Epigenetic and imprinting
7. Epigenetic in diseases
8. Epigenetic memory and neuronal related diseases
9. Epigenetic of Cancer I
10. Epigenetic of Cancer II
11. Journal Club I
12. Journal Club II
13. Journal Club III

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	Face to face
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching Use of ICT in communication with the students
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	***Activity*** — ***Workload/semester*** Lectures — 26 Bibliographic research and analysis — 44 Project — 20 **Course Total** — **90**
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	**Language of evaluation**: Greek, English **Methods of evaluation** • Written exams with open-ended questions (25%) • Written exams with short-answer questions (25%) • Written exams with multiple choice questions (25%) • Voluntary presentation of selected publications (25%) The methods of evaluation are also available at eclass.duth.gr

5. SUGGESTED BIBLIOGRAPHY

ΕΠΙΓΕΝΕΤΙΚΗ - Κωδικός Βιβλίου στον Εύδοξο: 102074157 Έκδοση: 1η/2021, Συγγραφείς: Lyle Armstrong, ISBN: 9789605246280 Τύπος: Σύγγραμμα Διαθέτης (Εκδότης): ΙΔΡΥΜΑ ΤΕΧΝΟΛΟΓΙΑΣ & ΕΡΕΥΝΑΣ-ΠΑΝΕΠΙΣΤΗΜΙΑΚΕΣ ΕΚΔΟΣΕΙΣ ΚΡΗΤΗΣ