COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF NATURAL SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF BIOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	BIO_ΔΥ02	**SEMESTER**	**4**
COURSE TITLE	MOLECULAR BIOLOGY I		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	3	8
Practical exercises	3	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific specialized background
PREREQUISITE COURSES:	Formally there are no prerequisites. However, knowledge of Biochemistry
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	
COURSE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Students will understand the structure and organization of the genetic information, the laboratory techniques for the basic study of DNA. They will learn the use of enzymes in Molecular Biology and the basic principles of genetic engineering and DNA recombination.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
……
Others…
…….

Search, analysis and synthesis of data and information, with the use of the appropriate technology.
Decision making.

(3) SYLLABUS

The genetic material: Structure and topology of nucleic acids. Organization of prokaryotic and eukaryotic genome: Repetitive and non-repetitive DNA. Structure of genes. Role of introns. Chromatin and chromosomes: The packaging of DNA. Nucleosomes. Active and non-active chromatin. Methylation of DNA. DNA replication: Replication in Prokaryotes and Eukaryotes Mechanisms of replication. Initiation, elongation and termination process. Genetic engineering: Restriction enzymes. Plasmids and phages as cloning vectors. Construction of DNA and genomic libraries.
Methodology and Implementation of the teaching and pedagogical approach in Molecular Biology.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face to face lectures in classroom and lab
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	One laboratory practice course consists on the search on certain data bases and finding of nucleic sequences of specific genes of several organisms and compare their homology with BLAST software. The course takes place at the computer centre of the Biology Department
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.*	

Activity	*Semester workload*
Lectures	39
Lab practice	15
Lab report	15
Course study	131

The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS		
	Course total	***200***
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	The lab practise consists of three parts of a larger one, divided for educational purpose. For the whole lab exercise students are asked to make a report in teams of 3-4 persons. The report is written according to international standards of a research report (abstract, introduction, methods, results, conclusions). The report is sent by mail and is presented to the teacher in charge. The final examination of the course includes 4 general questions, 4 overall questions to proceed and 2 practical problems to solve with the use of the techniques they have learned in lab practice The evaluation criteria are mentioned at the e-class of the course.	

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Genes. Lewin. Oxford University press. ISBN 0-19-879280-8 Έκδοση στα ελληνικά: Ακαδημαϊκές εκδόσεις, ISBN 960-88412-0-8

- Related academic journals: