

COURSE LAYOUT

1. GENERAL

SCHOOL	APPLIED BIOLOGY & BIOTECHNOLOGY		
DEPARTMENT	BIOTECHNOLOGY		
STUDY LEVEL	<i>Undergraduate</i>		
COURSE CODE	151	SEMESTER	3d
COURSE TITLE	PHYSICS OF LIFE		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	ECTS
LECTURES		3	3
PRACTICAL EXERCISES		2	2
TOTAL			5
COURSE TYPE	Scientific Specialization		
PREREQUISITES	Physics, Biochemistry		
LANGUAGE	Greek with English support in terminology		
IS THE COURSE OFFERED for ERASMUS STUDENTS?	YES (in English)		
COURSE WEB PAGE	https://mediasrv.aua.gr/eclass/courses/BIOTECH151/		

2. LEARNING OUTCOMES

Learning Outcomes
The course aims at deepening student's understanding of Physics concepts that constitute essential background for the study of biological phenomena.
General Competences
<p>Search , analyze and synthesize data and information, and the use of essential technologies</p> <ul style="list-style-type: none"> Adapting to new situations Decision making Independent work Teamwork Working in an international environment Work in a multidisciplinary environment Generating new research ideas

3. COURSE CONTENT

<p>Electrostatics. Electrical dipoles and molecular interactions. Dielectrics. Basic Thermodynamics. Statistical Thermodynamics and Applications to Intermolecular Interactions. Macromolecular Folding. Diffusion. The physics of enzymatic catalysis. Evolution from the point of view of Physics.</p>
--

4. TEACHING and LEARNING METHODS - Evaluation

TEACHING METHOD	In suitably equipped teaching rooms
------------------------	-------------------------------------

USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES	Use of Powerpoint presentations and Phet simulations & videos in lectures, use of specialized software, use of e-class website to inform, educate and communicate with students	
TEACHING ORGANISATION	<i>Activity</i>	<i>Work Load</i>
	Lectures	39
	Laboratory exercises	30
	Independent study	56
	<i>Course total (25 hours of student work load per ECTS)</i>	<i>125</i>
STUDENTS EVALUATION	<p>I. Theory: Written final examination (100%) comprising: multiple choice questions, problem solving and short answer questions.</p> <p>II. Laboratory: Written assignments on the laboratory exercises (100%).</p>	

5. BIBLIOGRAPHY

<ol style="list-style-type: none"> 1. Principles in Physical Biochemistry (van Holde, Johnson, Ho) 2nd Edition 2. Newman, Jay. Physics for Life Sciences