

COURSE OUTLINE

(1) GENERAL

SCHOOL	Sciences		
ACADEMIC UNIT	International Graduate Program in Biological Inorganic Chemistry		
LEVEL OF STUDIES	Graduate		
COURSE CODE	3	SEMESTER	1
COURSE TITLE	Special Topics in Biochemistry-Molecular Biology		
INDEPENDENT TEACHING ACTIVITIES <i>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</i>	WEEKLY TEACHING HOURS	CREDITS	
		5	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Scientific field Special background Specialised general knowledge		
PREREQUISITE COURSES:	No		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek / English		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)	http://bic.chem.uoi.gr/BIC-En/biochemistry-en.html		

(2) LEARNING OUTCOMES

<p>Learning outcomes</p> <p><i>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.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i> 		
<p>The course provides deepening into selected chapters of Biochemistry and Molecular Biology. The ultimate goal is to configure a general base of knowledge and perceptions, necessary for the understanding of biochemistry, physiology, pharmacology, clinical chemistry, for learning by examples, for application of chemical knowledge in the interpretation of biomedical phenomena and to familiarize students with the principles of Biochemistry, Molecular Biology and with the principles of laboratory studies. Also, students will be able to describe essential cytological mechanisms.</p>		
<p>General Competences</p> <p><i>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?</i></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i> <i>Adapting to new situations</i> <i>Decision-making</i> <i>Working independently</i> <i>Team work</i> </td> <td style="width: 50%; border: none;"> <i>Project planning and management</i> <i>Respect for difference and multiculturalism</i> <i>Respect for the natural environment</i> <i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i> <i>Criticism and self-criticism</i> </td> </tr> </table>	<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i> <i>Adapting to new situations</i> <i>Decision-making</i> <i>Working independently</i> <i>Team work</i>	<i>Project planning and management</i> <i>Respect for difference and multiculturalism</i> <i>Respect for the natural environment</i> <i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i> <i>Criticism and self-criticism</i>
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<i>Working in an international environment</i>	<i>Production of free, creative and inductive thinking</i>
<i>Working in an interdisciplinary environment</i>	<i>.....</i>
<i>Production of new research ideas</i>	<i>Others...</i>
	<i>.....</i>

The general competences that students should have acquired are:
 Search for, analysis and synthesis of data and information and decision making
 Translating the theory into practice
 Production of free, creative and inductive thinking
 Working independently and team work
 Acquire the appropriate theoretical base to allow further education at a doctoral level (theoretical and laboratory).

(3) SYLLABUS

(α) Biochemistry: Nucleic acids, peptide hormones, biological membranes, biological types, enzymology issues, enzyme kinetics, enzyme structure etc. (b) Peptide chemistry: Introduction, α-amino acids, peptides and proteins. Peptide synthesis. Three-dimensional structure of peptides and proteins. Side reactions of peptide synthesis. Separation and isolation of peptides and proteins. Biological extensions of peptide chemistry. (c) Forensic Chemistry-Forensic Toxicology (d) Cell Biology. Microbial Toxins.
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(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face to face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	E-mail, PowerPoint	
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>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.</i> <i>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</i>	Activity	Semester workload
	Lectures	65
	Essay writing	60
	Individual study, preparation	70
	Course total	195
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i> <i>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</i> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	Student evaluation is done either by presenting to a committee of teachers and a public audience or by the final written examination. The final examination includes: Multiple Choice, short-answer, open-ended, and Problem Solving Questions	

(5) ATTACHED BIBLIOGRAPHY

1. Ειδικά Θέματα Βιολογίας Κυττάρου. Ρυθμιστικοί μηχανισμοί κυτταρικής λειτουργίας. Θωμόπουλος, Γ. Ν. (2006). Εκδόσεις University Studio Press. Θεσσαλονίκη. 2. Το Κύτταρο: Μια Μοριακή Προσέγγιση ΕΠΙΤΟΜΗ ΕΚΔΟΣΗ, Geoffrey M. Cooper & Robert E. Hausman, Έκδοση: 1η/2013, ΑΚΑΔΗΜΑΪΚΕΣ ΕΚΔΟΣΕΙΣ Ι. ΜΠΑΣΔΡΑ & ΣΙΑ Ο.Ε., 2013

3. Βασικές αρχές κυτταρικής Βιολογίας Alberts (Ιατρ. Εκδ. Πασχαλίδης 2006), Alberts B., Bray D., Hopkin K., Johnson A., Lewis J., Raff M., Roberts K., Walter P., 2η έκδ./2006, BROKEN HILL PUBLISHERS LTD, 2006

- Related academic journals:

Journal of Medicinal Chemistry, Molecular Oncology, Biological Chemistry, Journal of Biological Chemistry