

CODE : BIOHUM10	COURSE TITLE: STRUCTURE AND FUNCTION OF BIOLOGICAL MEMBRANES. MOLECULAR APPROACH.			ECTS: 3
COORDINATOR: KRZYSZTOF POLEWSKI		DEPARTMENT: PHYSICS		
COURSE CATEGORY				
VOLUME(H) 15			PERSONAL WORK (H)	
LECTURE: (H) 15	PRACTICALS /LAB (H)	PLACEMENT: (H)	PROJECT: (H)	OTHER MODALITIES: (H)
EVALUATION:		OTHER MODALITIES:	LECTURER(S)	
EVALUATION MODALITIES			KRZYSZTOF POLEWSKI	
ORAL INDIVIDUAL REPORT				
WRITTEN INDIVIDUAL REPORT				
FINAL ORAL EXAM				
FINAL WRITTEN EXAM	X			
COMMENTS OF EVALUATION:		TEACHING METHODS: LECTURES		
SEMESTER: WINTER OR SUMMER		LANGUAGE: ENGLISH		
PERIOD:		YEAR OF STUDY: SECOND/THIRD		
OBJECTIVES				
To give students the view of the fundamental physical mechanisms regarding the interactions in membranes and lipids.				
CONTENTS				
<ul style="list-style-type: none"> ▪ Peripheral and integral membrane proteins. ▪ Methods of biomembrane isolation. ▪ Methods of isolation, crystallization and reconstitution of membrane proteins. ▪ Examples of the detailed structure of some membrane proteins. ▪ Computer analysis of primary structure and hydrophobic labeling in analysis of membrane disposition of proteins. ▪ Proteins covalently attached to lipids. ▪ Models and mechanisms of insertion of proteins into the membrane. ▪ Peripheral membrane proteins. ▪ Interaction of peripheral membrane proteins with intrinsic membrane domain. ▪ Membrane transport. Passive and active transport, facilitated diffusion. ▪ Channels, pores and carrier. ▪ Membrane ATP-ases (Type P, F, and V). ATP-ases carrying organic anions and ATP-ases of ABC-type. Examples of proteins responsible for cell-to-cell or cell-to extracellular matrix adhesion. 				
GROUP SIZE:		PRE-REQUISITES: BIOCHEMISTRY		