

CODE : <b>BIOHUM 14</b>		COURSE TITLE: <b>PHYSICAL METHODS IN BIOLOGY</b>		ECTS: <b>3</b>	
COORDINATOR: <b>KRZYSZTOF POLEWSKI</b>			DEPARTMENT: <b>PHYSICS</b>		
COURSE CATEGORY					
VOLUME(H) <b>15</b>			PERSONAL WORK (H)		
LECTURE: (H) <b>15</b>	PRACTICALS /LAB (H)	PLACEMENT: (H)	PROJECT: (H)	OTHER MODALITIES: (H)	
EVALUATION:		OTHER MODALITIES:		LECTURER(S)	
EVALUATION MODALITIES					
ORAL INDIVIDUAL REPORT					
WRITTEN INDIVIDUAL REPORT					
FINAL ORAL EXAM					
FINAL WRITTEN EXAM		<b>x</b>			
COMMENTS OF EVALUATION:			TEACHING METHODS: <b>LECTURES</b>		
SEMESTER: <b>WINTER OR SUMMER</b>			LANGUAGE: <b>ENGLISH</b>		
PERIOD:			YEAR OF STUDY: <b>SECOND/THIRD</b>		
OBJECTIVES					
To familiarize students with physical methods applied to determine properties of natural products					
CONTENTS					
<ul style="list-style-type: none"> <li>▪ Discussion of measuring error, theory of incidental error.</li> <li>▪ Mean values, index dispersion.</li> <li>▪ Interrelation between variable, correlation factor, linear regression.</li> <li>▪ Accuracy and repeatability of methods.</li> <li>▪ Physical basis and application in biology of absorption and emission spectroscopies, flame photometry refractometry, polarimetry and mass spectroscopy.</li> <li>▪ Electrochemical methods: potentiometry with pH-metry, polarography, voltamperometry, coulometry, conductometry, basis and application.</li> <li>▪ Electrophoresis in separation of macromolecules.</li> <li>▪ Hydrodynamic methods: sedymentation, physical basis and application in fractionation of biological materials using centrifugation, ultracentrifugation and centrifugation in gradient density.</li> <li>▪ Molecular spectroscopy: NMR, EPR, UV, Vis, IR.</li> </ul>					
GROUP SIZE:			PRE-REQUISITES:		