

Study programme: BSc in Biology			
Level: Bachelor degree			
Course title: COMPARATIVE ANIMAL PHYSIOLOGY			
Lecturers: Prof. Dr Silvana Andric, Prof. Dr Tatjana Kostic			
Status: Obligatory			
ECTS: 6			
Requirements: -			
Learning objectives <p>Objective of this course is to study the fundamental mechanisms that animals use to perserve homeostasis. Great range of vertebrate's and invertebrate's species will be studied in terms of importance in the evolution of organic systems, and mechanisms than are different animals have developed to fight with common problems of the envionrment as well as in terms of species mechanisms that animals use to deal with exterme environmental conditions.</p>			
Learning outcomes <p>At the end of this course students will be able to understand and descibe how animals functions as the integrated systems at all levels of the functional organisation, and to know how to describe comparative aspects of different physiological functions.</p>			
Syllabus <i>Theoretical instruction</i> <p>Comparative review of the function of body fluids and featured elements. Basic characteristics of the organisation and functions of the immune system. Comparative review and function of circulatory, respiratory, gastrointestinal and excretory system. Comparative aspects of osmoregulation and termoregulation. Comparative aspect of the endocrine function of the pineal gland, hypothalamus, pituitary gland, thyroid gland, parathyroid glands, pancreas, adrenal gland, gonads.</p> <i>Practical instruction</i> <p>Qualitative analysis of hemolymph and serum/plasma. Determination of number of cellular elements in peripheral blood of different animals. Comparative analysis of the speed of blood coagulation parameters of different animals. Standardization of ABO blood group system. Computer simulations depicting the mechanisms of regulation of blood flow, and function and regulation of respiration. Comparative aspects of digestion of food. Qualitative and quantitative analysis of the concentration of urea in serum. Estrous cycle, preparing preparations for the determination of the phase cycle of female rats.</p>			
Recommended Literature: <p>Ganong WF (2005): <i>Review of Medical Physiology</i>. Lange/WCB McGraw-Hill Companies. Hill RW, Wyse GA & Anderson M (2004): <i>Animal Physiology</i>. Sinauer Associates Randall D, Burggren W & French K (2004): <i>Eckert Animal Physiology – mechanisms and adaptations</i>. Freeman Germann WJ & Stanfield CL (2005): <i>Principles of Human Physiology</i>. Pearson Education & Benjamin Cummings. Schmidt-Nielsen K (1997): <i>Animal Physiology – adaptation and environment</i>. Cambridge Univerisity Press. Andric S, Kostic T, Andric N, Zoric S. (2005): <i>Comparative Animal Physiology (script)</i>. WUS Austria. Davidovic V (2003): <i>Comparative Animal Physiology</i>. Institute for textbooks and teaching aids. Belgrade.</p>			
Weekly teaching load			Other:
Lectures: 3	Exercises:	Other forms of teaching: 4	
Student research:			
Teaching methodology <p>Theoretical part - Lectures Practical part – Combination of laboratory work and computer simulations</p>			
Grading method (total number of points 100)			
Pre-exam obligations	points	Final exam	points
Practical problems	up to 30	Oral exam	up to 20
Tests	up to 50		