

Course Unit Descriptor

Study Programme: BSc in Biology (module: Molecular biology, Microbiology)			
Course Unit Title: Comparative Animal Physiology			
Course Unit Code: OB039			
Name of Lecturer(s): Ass. Prof. Tatjana Celic, PhD			
Type and Level of Studies: Bachelor's studies			
Course Status (compulsory/elective): compulsory			
Semester (winter/summer): winter			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated: 6			
Prerequisites: -			
<p>Course Aims: Objective of this course is to study the fundamental mechanisms that animals use to preserve 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 environment as well as in terms of species mechanisms that animals use to deal with extreme environmental conditions.</p>			
<p>Learning Outcomes: At the end of this course students will be able to understand and describe how animals functions as the integrated systems at all levels of the functional organization, and to know how to describe comparative aspects of different physiological functions.</p>			
<p>Syllabus: <i>Theory</i> Comparative review of the function of body fluids and featured elements. Basic characteristics of the organization and functions of the immune system. Comparative review and function of circulatory, respiratory, gastrointestinal and excretory system. Comparative aspects of osmoregulation and thermoregulation. Comparative aspect of the endocrine function of the pineal gland, hypothalamus, pituitary gland, thyroid gland, parathyroid glands, pancreas, adrenal gland, gonads. <i>Practice</i> 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>			
<p>Required Reading: Ganong WF (2005): Review of Medical Physiology. Lange/WCB McGraw-Hill Companies. Hill RW, Wyse GA & Anderson M (2004): Animal Physiology. Sinauer Associates Randall D, Burggren W & French K (2004): Eckert Animal Physiology – mechanisms and adaptations. Freeman Germann WJ & Stanfield CL (2005): Principles of Human Physiology. Pearson Education & Benjamin Cummings. Schmidt-Nielsen K (1997): Animal Physiology – adaptation and environment. Cambridge University Press. Andric S, Kostic T, Andric N, Zoric S. (2005): Comparative Animal Physiology (script). WUS Austria. Davidovic V (2003): Comparative Animal Physiology. Institute for textbooks and teaching aids. Belgrade.</p>			
Weekly Contact Hours:	Lectures: 2	Practical work: 0+4+0	
<p>Teaching Methods: Theoretical part - Lectures Practical part – Combination of laboratory work and computer simulations</p>			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Practical work	up to 30	Written exam	up to 20
		Oral exam	up to 50