NAME OF THE COURSE		Invertebrates					
Code	PMB025	Year of study		2.			
Course teacher	Prof.dr.sc. Biljana Apostolska	Credits (ECTS)		6,5			
Associate teachers		Type of instruction (number of hours)		L	S	E	F
				30		45	
Status of the course	regular	Percentage of application of e-learning		10%			
COURSE DESCRIPTION							
Course objectives	To reach the main knowledge and concepts from morphology, systematics, phylogeny and evolution of invertebrates. Students will learn how to determine different groups of invertebrates. Special accent is given on fauna of Republic of Croatia. Those lectures are necessary for understanding future lectures from the field of zoology.						
Course enrolment requirements and entry competences required for the course	None						
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. To define the main terms from systematics and taxonomy of invertebrates 2. To distinguish representatives from the different phylla 3. To recognise adaptations on biotop of terrestrial and aquatic invertebrates 4. To link anatomic adaptations with the way of digestion of food (filter feeders, shredders,scrapers, predators) and with the way of living (sesile, half sesile and mobile) 5. To understand the influence of tagmatisation in arthropods with the transition from aquatuc to terrestrial environment 6. Anatomic and morphological characteristics of parasitic forms 7. To understand anatomy and morphology of invertebrates with their systematic position due to embriology, embrionic and postembrionic development 8. To use independently determination keys						
Course content broken down in detail by weekly class schedule (syllabus)	Lectures: 1. Introduction: an overwiev from protists to echinoderms due to embriology, morphology and taxonomy (3) 2. Protist: body plan, organels and their rule, taxonomy, representatives of main phylla, protist species as infective animals (3) 3. Sponges: body plan, taxonomy and overwiev of the most famous species from Adriatic Sea (3) 4. Cnidarians, Platyhelminths and roundworms: body plan, anatomy and taxonomy, parasitic species and their way of living (3) 5. Molluscs. Taxonomy of phylla with the main characteristics of each of them, Gastropods, Bivalves and cephalopods: body plan, anatomy and physiology and economic value of species (3) 6. Annelids: taxonomy of phylla, body plan, anatomy and physiology and species list (3) 7. Arthropods: Arachnida and Myriapoda: body plan, anatomy and physiology, taxonomy and species list (3) 8. Arthropods: Crustaceans- taxonomy of phylla, anatomy and physiology of group, species list (3) 9. Arthropods: Insects – taxonomy of phylla, body plan, anatomy and physiology, metamorphosis and species list (3)						

	10. Echinoderms: taxonomy of phylla, body plan, ambulaclar water system and species list (3) Laboratory excersises. 1. Protists I (3) 2. Protists II (3) 3. Spongia (3) 4. Cnidarians (3) 5. Plathyhelminthes (3) 6. Aschelminthes (3) 7. Mollusca- Gastropoda (3) 8. Mollusca- Bivalvia (3) 9. Mollusca- Cephalopoda (3) 10. Annelida (3) 11. Crustacea (3) 12. Insecta (3) 13. Echinodermata (3) 14. Determination of species (3) 15. Fauna of Croatia (3)

Format of instruction	☒ lectures ☒ seminars and workshops ☒ exercises ☒ *on line* in entirety ☒ partial e-learning ☒ field work	☒ independent assignments ☒ multimedia ☒ laboratory ☒ work with mentor ☒ collection of invertebrate species

Student responsibilities	According the faculty propositions

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Class attendance		Research		Practical training	
	Experimental work		Report		Collection of invertebrates	0,5
	Essay		Seminar essay		(Other)	
	Tests	4	Oral exam	1	(Other)	
	Written exam	1	Project		(Other)	

Grading and evaluating student work in class and at the final exam	The exam is divided in two parts: test and oral exam. All subject is divided into two parts and there is possibility to pass with two partial exams. Test is valid over 60% of total points. After test, student is allowed to approach the oral exam. The final point of exam is the mean value of test and oral exam.Points: <60% negative (1); 60-70% sufficient (2); 70-80% good (3); 80-90% very good (4); 90-100% excellent (5)

Required literature (available in the library and via other media)		Number of copies in the library	Availability via other media
	Miller, S.A., Harley, J.P. (2004): Zoology. McGraw-Hill, Boston.		
	Hickman, C. Jr.,Roberts, L., Larson, A., I'Anson, H. (2003): Integrated Principles of Zoology.McGraw-Hill, Boston.		
	Wheater's Functional Histology: a text and colour atlas, ed. B. Young, J.W. Heath, Churchill Livingstone, London, 2001		

	Ruppert, E.E., R. S. Fox and R. D. Barnes (2004). Invertebrate Zoology. A functional evolutionary approach. Seventh edition, Thomson Brooks/Cole.		
Optional literature (at the time of submission of study programme proposal)	Matoničkin, I. Biologija viših avertebrata, Školska knjiga, Zagreb, 1999 Matoničkin, I, Habdija, I. i Habdija-Primc, B. Biologija nižih avertebrata, Školska knjiga, zagreb, 1998 Habdija, I. i sur. (2011). Protista-Protozoa - Metazoa-Invertebrata strukture i funkcije. Alfa, Zagreb. Habdija, I. i sur. (2004). Protista-Protozoa i Metazoa-Invertebrata. Funkcionalna građa i praktikum. Meridijani, Samobor.
Quality assurance methods that ensure the acquisition of exit competences	Consultations, poll evaluation
Other (as the proposer wishes to add)	