NAME OF THE COURSE	ECOLOGY I					
Code	PMB506	Year of study	2			
Course teacher	Prof.dr.sc. Mate Šantić Full professor; Doc.dr.sc. Antonela Paladin	Credits (ECTS)	4			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30	15		
Status of the course	Obligatory	Percentage of application of e-learning	20			

COURSE DESCRIPTION	
Course objectives	Understand relationship between organisms and environment that is necessary to explain life process at the Earth as well as evolution of life and diversity of Earth life in time and space. Students will be obtain theoretical knowledge from fundamental ecology principles that is necessary precondition for correctly management of natural resources on the Earth.
Course enrolment requirements and entry competences required for the course	Ability application of elementary knowledge from biology, chemistry and physics.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Understand various problems in Ecology Science. Understand basic principles between organisms (plant and animal) and environment. Ability to distinguish ecology properties of marine and land ecosystems. Understand adaptation of organism for specific condition in environment. Understand concept of ecosystem. Understand flow of energy and circulation of materials
Course content broken down in detail by weekly class schedule (syllabus)	**Lecture 1. The nature of ecology.** Definition of ecology, ecology hierarchy, ecology divide. **Lecture 2. Life and environment, ecology factors** Explanation relationships between living (plant and animal) and not living world. Ecology factors. Ecology range (valence) of various ecology factors. **Lecture 3. Life on land (terrestrial environment)** Properties of land habitat. Dominant ecology factors. Abundancy of organisms. **Lecture 4. Life in aquatic environment.** Properties of freshwaters. Dominant ecology factors in freshwaters ecosystems. Life and adaption of organisms in freshwaters habitat (lake, river) **Lecture 5. Marine environments.** Properties of marine waters. Dominant ecology factors in marine ecosystems. Life and adaption of organisms in marine habitat. **Lecture 6. Environment condition and Adaptation of organisms**. Autecology. Influence of various environmental physical-chemistry factors. Morphology convergence. Parallel evolution. Adaptive radiation. **Lecture 7. Bioclimatic rules –** Bergman, Alenn and Gloger bioclimatic rules. Temperature influence on adaptation of organisms in various environment.

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	Lecture 8. Adaptation of organisms connect with other ecological factors (**light, water, oxygen, salt, pressure, pH**). Reaction of organisms connect with light, photoperiod, light and feeding, water regulation on marine and freshwater environment. Salinity influence. Influence of oxygen and pressure. **Lecture 9. Biological factors in environment (1).** Mutualism and commensalism **Lecture 10. Biological factors in environment (2).** Predation. Prey and predator adaptation, competition, amensalism and parasitism. **Lecture 11. Concept of ecosystem. Trophic level in ecosystem.** History development of ecology concept. Pyramids of numbers, biomass, and energy. Thermodynamic lows. Terrestrial and marine food chain. **Lecture 12. Production and energy flow in ecosystem (1).** Primary and secondary production. Ecosystem metabolism. Primary production in terrestrial and aquatic ecosystem. **Lecture 13. Production and energy flow in ecosystem (2).** Energy transformation. Energy flow in ecosystem, energy efficiency. **14. Biogeochemical cycles.** Biogeochemical cycle of carbon, water, oxygen, and nitrogen and phosphate. **15. Regeneration of minerals. Biomes.** Regeneration of minerals in terrestrial and aquatic ecosystem. Vertical moving of minerals in marine and freshwater ecosystems. Biomes on Earth. Seminars: During the semester keep 5 seminars. Some of that is permanency and some of that choice student considering actual occurrence in ecology and protect of environment. Permanency seminars Seminar 1: Influence of physical and chemical parameters on life in biosphere. Seminar 2: Organic production in marine and terrestrial ecosystem.
Format of instruction	☒ lectures ☒ seminars and workshops ☐ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	

Screening student work *(name the proportion of ECTS credits for each*	Class attendance	1	Research		Practical training	
	Experimental work		Report		(Other)	

activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Essay		Seminar essay	1	(Other)	
	Tests		Oral exam	2	(Other)	
	Written exam		Project		(Other)	

Grading and evaluating student work in class and at the final exam	Finnaly evalution : oral exam		
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Šantić M: Ecology I: Script. CD with power presentation.		Yes
	Šolić, M. 2018. Ecology of biocenosis and ecosystems. Golden marketing – Tehnička knjiga, Zagreb. Institute of Oceanography and fisheries, Split.		Yes
Optional literature (at the time of submission of study programme proposal)	Ricklefs, R.E. and Miller, G.L. 1999. Ecology. (4. Ed.) W.H. Freeman and Company. 896 pp. Begon, M., Townsend, C.R. and Harper, J.L. 2005. Ecology: From Individuals to Ecosystems. (4. Ed.), Wiley-Blackwell. 752 pp. Krebs, C.J. 2009. Ecology: The Experimental Analysis of Distribution and Abundance. 2000. (6. Ed.). Benjamin Cummings. 655 pp.		
Quality assurance methods that ensure the acquisition of exit competences	Active participation in course, personal consultation. Student evaluation.		
Other (as the proposer wishes to add)			