

NAME OF THE COURSE		Biology Education I				
Code	PMB248	Year of study	1			
Course teacher	Associate Professor Mirko Ruščić, PhD	Credits (ECTS)	4			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30	30		
Status of the course	Mandatory	Percentage of application of e-learning	10			
COURSE DESCRIPTION						
Course objectives	Adopting the legality and theoretical knowledge of teaching and learning biology, enabling students to apply the accepted knowledge within the upcoming methodology courses, ie in teaching and extracurricular work.					
Course enrolment requirements and entry competences required for the course	Professional biology courses and pedagogy. It is desirable to have knowledge of didactics and psychology of learning.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	<p>Student will be able to:</p> <ol style="list-style-type: none"> 1. Apply basic theoretical settings of Biodiversity Methodology in Nature and Biology, with the development of scientific experiences and motivations for further learning. 2. Argue the status of biology in the science and education system and the position of biology teaching methodology. 3. Explain ways of understanding and motivation in biology. 4. Formulate the goals and tasks of teaching biology as well as the outcomes of learning in biology, to anticipate the original biological reality, teaching aids and aids in the teaching of biology teaching. 5. Apply basic teaching skills and forms of work in the teaching of biology teaching. 6. Encourage scientific and critical thinking with problem solving as well as research student learning projects. 7. Apply theoretical biology knowledge in the preparation and implementation of experiments in biology teaching. 8. Classify pupils' knowledge by levels and types of knowledge. 9. Link the forms of work, teaching methods with teaching systems in the teaching of biology teaching. 10. Analyze teaching processes, their interconnectedness and condition, starting from experiencing concrete situations during classroom work. 					
Course content broken down in detail by weekly class schedule (syllabus)	<p>Lectures: / Exercises:</p> <ol style="list-style-type: none"> 1. Historical overview of the development of Biology teaching (teaching philosophy, biology teacher's call, learning and teaching map - portfolio in teaching, e-learning); call the biologist; 2P + 2S 2. Basic Biology Teaching Skills (Biology Teaching Methods, Organization of Teaching Facilities, Classes for Teaching, Exercise Teaching, Extracurricular Activities); 2P + 2S 3. Knowledge in biology, motivation in teaching and teaching factors; 2P + 2S 					

	<p>4. Sociological forms of work (appreciation of learning styles and personality in adapting teaching, inclusive learning, work with gifted students, supplementary and additional teaching); 2P + 2S</p> <p>5. Development of biological scientific literacy (encouraging scientific and critical thinking and solving problems); 2P + 3S</p> <p>6. Project and study of pupils in teaching (stages of research, observation with hypothesis, research project); 2P + 2S</p> <p>7. Understanding and barriers in biology teaching (the nature of biological knowledge, cognitive biology); 2P + 2S</p> <p>8. Strategies and techniques of active learning in biology teaching; 3P + 2S</p> <p>9. Collaborative and joint learning; 2P + 3S</p> <p>10. The outcomes of teaching biology teaching and cognitive learning model (cognitive levels of student achievement); 2P + 2S</p> <p>11. Basic Biological Conceptual Model of Teaching (Biological Conceptual Framework, Constructing Concepts, Conceptual Change, Constructivism in Biology Teaching); 3P + 2S</p> <p>12. Evaluation of the adoption of biology teaching contents by level of knowledge; 3P + 3S</p> <p>13. Self-evaluation and evaluation of students and teachers by applying criterion evaluation (designing a section to determine learning achievements using elements and rating criteria; 3P + 2S</p>					
Format of instruction	<input checked="" type="checkbox"/> lectures <input checked="" type="checkbox"/> seminars and workshops <input checked="" type="checkbox"/> exercises <input type="checkbox"/> on line in entirety <input type="checkbox"/> partial e-learning <input type="checkbox"/> field work		<input checked="" type="checkbox"/> independent assignments <input checked="" type="checkbox"/> multimedia <input checked="" type="checkbox"/> laboratory <input type="checkbox"/> work with mentor <input type="checkbox"/> (other)			
Student responsibilities	Regular attendance, solving individual assignments					
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	1,5	Research		Practical training	
	Experimental work		Report		(Other)	
	Essay		Seminar essay	1,5	(Other)	
	Tests		Oral exam	1	(Other)	
	Written exam		Project		(Other)	
Grading and evaluating student work in class and at the final exam	Oral exam 60% Individual assignments 20% Predispit 20%					
Required literature (available in the library and via other media)	Title			Number of copies in the library	Availability via other media	
	Ruščić, M., 2011. Biology teaching methodology. Interna script				mail	

	Bruening, L. 2008. By studying to successful teaching: how to activate students and encourage them to cooperate. Naklada Kosinj. Zagreb	1	
	Marzano, R.J., Pickering, D.J., Pollock, J.E., 2006 Teaching strategies: How to apply the nine most successful teaching strategies translated T. Jakovčević, EDUCA, Zagreb	1	
	Sampson, V., Schleigh, S., 2012. Scientific Argumentation in Biology: 30 Classroom Activities, NSTA Brown, C.R. 1995. The effective teaching of biology. Longman Publishing, New York.		
	Koba S., Tweed A. 2009.Hard-to-teach biology concepts: a framework to deepen student understanding. NSTA press. Arlington, Virginia, USA.	1	
	https://books.google.hr/books?id=eQiQ4jWwQikC&pg=PR12&lpg=PR		
	Allen D., Tanner K. 2009.Transformations. Approaches to College Science Teaching. W.H.Freeman & co. New York, USA.		
	Killermann, W. 1991. Biologieunterricht heute - Eine moderne Fachdidaktik. Verlag Ludwig Auer. Donauwrth		
Optional literature (at the time of submission of study programme proposal)	Biology textbooks for elementary and high school approved by the Ministry of Science, Education and Sports. Herr N. 2006. The sourcebook for teaching science, http://www.csun.edu/~vceed002/biology/index.html Professional and scientific articles and other sources are highlighted as additional literature and are available through the Biology teaching methodology website, http://merlin.srce.hr/ Willis J. 2006. Research-based strategies to ignite student learning: insights from a neurologist and classroom teacher. ASCD. Alexandria, Virginia, USA		
Quality assurance methods that ensure the acquisition of exit competences	Personal consultations, discussion, analysis of individual tasks, institutional evaluation of the teaching process		
Other (as the proposer wishes to add)			