

COURSE OUTLINE

1. OVERVIEW

FACULTY	FACULTY OF HUMANITIES AND SOCIAL SCIENCES		
SECTION	DEPARTMENT OF PRIMARY EDUCATION		
LEVEL OF STUDY	UNDERGRADUATE		
COURSE TITLE			
Concepts of Biology and Ecology and their Didactics			
COURSE CODE	ΦΕ1302	SEMESTER	5, 7
HOURS per WEEK	3	ECTS	4
COURSE CATEGORY	Elective	COURSE TYPE	Scientific area
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	Modern Greek	PREREQUISITES	
OFFERED TO ERASMUS	NO	ECLASS PAGE	https://eclass.uth.gr/courses/PRE_U_295/

2. LEARNING OUTCOMES

Learning Outcomes
Upon successful completion of the course, students are expected to: understand the problems that students' cognitive structures present when learning the science of biology understand important cognitive and epistemological aspects of the biological subject and will have background knowledge necessary for the future teaching of biology in primary school be familiar with teaching techniques and models that can be used in classrooms use techniques/models that promote the thinking of primary school pupils and will enhance their learning autonomy
General Competencies
Data and information search, analysis and synthesis, using IT as needed Adaptability to new situations Critical and self-critical thinking Advancement of free, creative and inductive thinking

3. CONTENT

Difficulties in understanding biology and learning problems. Scientific analysis of concepts. Linking the nature of concepts to didactics: What a student needs to know to say they understand a scientific concept Scientific analysis of scientific propositions. Linking the nature of scientific propositions to didactics: Formulating a model for assessing students' knowledge of biological concepts Scientific analysis of arguments and reasoning. Why knowledge of the nature of logic is essential to a teacher: Recognition of sophistry and fake news Basic knowledge of the cell. Learning problems and ways of teaching with the constructivist model. Basic knowledge of cellular processes (e.g. cellular respiration). Learning problems and ways of teaching with the constructivist model. Basic knowledge of the ecosystem. Learning problems and ways of teaching with the constructivist model. Basic knowledge of ecosystem processes (e.g. degradation). Learning problems and ways of teaching with the constructivist model. Basic knowledge of human anatomy and physiology. Learning problems and general principles of teaching this scientific subject. Basic knowledge of the circulatory system. Learning problems and ways of teaching using the constructivist model. Basic knowledge of the digestive system. Learning problems and ways of teaching with the constructivist model. Basic knowledge of the immune system. Learning problems and ways of teaching using the constructivist model

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING MODE	In person		
USE OF ICT	Teaching and learning: Video & audiovisual materials Communication: Webmail / eClass / MSteams / ...		
COMPULSORY ATTENDANCE	NO	MAXIMUM NUMBER OF ABSENCES:	
TEACHING ORGANIZATION	Activity		Semester Workload (hours)
	Lectures		39
	Study		52
	Examination		2
	Course total		93
EVALUATION	Type	Format	Weighting
	Final written exam	Multiple Choice Questions Short Answer Questions Open-Ended Questions	100%
	Description of other evaluation method / Evaluation criteria:		

5. RECOMMENDED BIBLIOGRAPHY

Core textbooks (available through the Eudoxus service)
Αθανασίου Κυριάκος (2010) Εισαγωγή στις Βιολογικές επιστήμες και η διδακτική τους. Αθήνα: Εκδόσεις Γρηγόρη.
Ζόγκζα Βασιλική (2007) Η βιολογική γνώση στην παιδική ηλικία. Αθήνα: Μεταίχμιο Εκδοτική"
Αθανασίου Κυριάκος (2015). Διδακτική της Βιολογίας. [ηλεκτρ. βιβλ.] Αθήνα: Σύνδεσμος Ελληνικών και Ακαδημαϊκών Βιβλιοθηκών. Διαθέσιμο στο: www.kallipos.gr
Other books / Notes
Scientific journals
Scientific articles
Schizas, D., Psillos, D. & Papadopoulou, P. (2019). De-black-boxing Learners: What is Occurring in their Minds When they Answer Multiple-choice Questions that Assess their Understanding of Biological Concepts?. International Journal of Environmental and Science Education, 14(5), 297-310.
Schizas D., Katrana E. & Stamou G (2013). Introducing Network analysis into Science Education: Methodological research examining secondary students' understanding of 'decomposition'. International Journal of Science and Environmental Education 8: 175-198.
Other