General information		
Academic subject	*Ecology and Environmental Legislation*	
Degree course	*Environmental Science (L32)*	
Academic Year	*2021-2022*	
European Credit Transfer and Accumulation System (ECTS)		10
Language	*Italian*	
Academic calendar (starting and ending date)	*I semester (27 September – 14 January)*	
Attendance	*Recommended attendance*	

Professor/ Lecturer	
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Virtual headquarters	*Microsoft Teams – code d65ly62*
Tutoring (time and day)	Monday/Friday (10:30-11:30) by appointment

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Syllabus	
Learning Objectives	*Knowing the characteristics of the different environmental compartments and the processes that are triggered within them in order to learn the interactions between the biotic and abiotic components of ecosystems in natural conditions and under the effect of anthropogenic pressures.*
Course prerequisites	*Basic knowledge for the subjects related to biology, geology, mathematics, physics and chemistry.*
Contents	*1. General principles in Ecology and concept of Ecosystem;* *2. Energy in ecosystems: thermos-dynamic theory and primary production;* *3. Flux of energy trough ecosystems;* *4. Energy in trophic web. Trophic web. Ecological pyramids;* *5. Bio-accumulation and bio-magnification;* *6. Decomposition and cycle of nutrients;* *7. Bio-geochemical cycle of water;* *8. Bio-geochemical cycle of Oxygen;* *9. Bio-geochemical cycle of Carbon;* *10. Bio-geochemical cycle of Nitrogen;* *11. Bio-geochemical cycle of Phosphate;* *12. Demography and population dynamic;* *13. Predation and Competition;* *14. Biodiversity and measures;* *15. EU Directive 152/2006;* *16. Habitat Directive;* *17. Marine Strategy Framework Directive* *Laboratories: Didactic approach to the teaching of demoecology and population dynamics.*
Books and bibliography	*Odum E. P. - Basi di ecologia - Piccin Ed.* *Smit & Smith Elementi di Ecologia Ed.Pearson*

	Colin R. Townsend, John L. Harper, Michael Begon - L'essenziale di ecologia - Zanichelli. *Ricklefs R. - L'Economia della natura - Ed. Zanichelli.* *Autori vari - LE SCIENZE quaderni. I cicli della biosfera. Numero 6, marzo 1983.*
Additional materials	*indication of web sites*

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
Hours			
250	*72*	*22.5 Laboratory + 12 Field activity*	*143.5*
ECTS			
10	*8*	*1.5+0.5*	

Teaching strategy	
	Lecture is the main teaching method. It is supported by laboratory activities aimed at acquiring practical skills useful for completing the learning of the theoretical concepts provided during the course. To support teaching, slides in Microsoft Office Power Point are used.
Expected learning outcomes	
Knowledge and understanding on:	○ Know and learn the interactions between the biotic and abiotic components in marine and terrestrial ecosystems; ○ Know and learn the effects of pressures and impacts on marine and terrestrial ecosystems as well as their components.
Applying knowledge and understanding on:	○ Skills to collect, process and analyses independently scientific data concerning environmental systems at different spatial and temporal scale; ○ Multidisciplinary analysis skills with attention paid to the modelling of environmental systems and quali-quantitative relations between the biotic and abiotic components.
Soft skills	• *Making informed judgments and choices* ○ Contextualization of environmental concerns subject, with interpretation and evaluation of collected, processed and analysed data in order to implement experimental model. • *Communicating knowledge and understanding* ○ Logical, articulated and autonomous exposition of information acquired with adequate linguistic properties. • *Capacities to continue learning* ○ Ability to integrate learn notions, instrumental methodologies and data processing from different bibliographic sources both in Italian and in English in order to acquire new skills.

Assessment and feedback	
Methods of assessment	*Oral test articulated on the entire program provided.*
Evaluation criteria	• *Knowledge and understanding* ○ Demonstrate knowledge of the theoretical and modelling aspects of the entire program provided. • *Applying knowledge and understanding* ○ Contextualization of acquired knowledge;

	○ Assessment of multidisciplinary problem solving skills; ○ Adequacy in instrumental, methodological processing. • *Autonomy of judgment* ○ Collect and assess useful data to determine autonomous judgments, including reflection on scientific and social issues connected to them. • *Communication skills* ○ Organization of the knowledge acquired in a logical, independent and inedited version. • *Capacities to continue learning* ○ Develop the skills necessary to undertake subsequent studies independently.
Criteria for assessment and attribution of the final mark	*Partial satisfaction of criteria listed above is a necessary condition for achieving a rating of 18/30. Rating higher than 27/30 will be awarded to students whose tests meet all five criteria listed above. To pass the exam, report, then a vote of not less than 18/30, student must demonstrate that have acquired sufficient knowledge of program arguments. To achieve a score of 30/30 and praise, the student must demonstrate, however, that has gained an excellent knowledge of all topics covered during the teaching.*
Additional information	

Bari, 31/08/2021

Firma

(Prof. Roberto Carlucci)