

General information	
Academic subject	<b><i>Biology and conservation of Cetaceans</i></b>
Degree course	<i>Environmental Biology (LM-6), Science of Nature and Environment (LM60-LM75)</i>
Academic Year	2021/2022
European Credit Transfer and Accumulation System (ECTS)	4
Language	<i>Italian</i>
Academic calendar (starting and ending date)	<i>II semester (1 March-15 June)</i>
Attendance	

Professor/ Lecturer	
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Department and address	<i>Department of Biology, Via Orabona 4, Bari Italy</i>
Virtual headquarters	<i>Microsoft Teams – code j8cybf4</i>
Tutoring (time and day)	Monday (14:00-15:00) by appointment

Syllabus	
<b>Learning Objectives</b>	<i>To know and understand the basic notions about the bio-ecology and evolution of Mediterranean species of cetaceans, as well as the techniques for their monitoring with great attention to current research in the field.</i>
<b>Course prerequisites</b>	<i>None</i>
<b>Contents</b>	<ol style="list-style-type: none"> <li>1. <i>Introduction to the Mediterranean Cetaceans (3 h)</i></li> <li>2. <i>Hints of evolution and morphological and physiological adaptations for life at sea (2 h)</i></li> <li>3. <i>Visual survey methodologies from different observation platforms (Distance Sampling, Air Survey, etc.) (4 h)</i></li> <li>4. <i>Cetacean photo-identification techniques (3 h)</i></li> <li>5. <i>Outline of marine bio-acoustics: vocalization, eco-location and underwater noise as a potential anthropic disturbance (2 h)</i></li> <li>6. <i>Study of Cetacean behavior: activity, behavioral categories, focal point scanning method (3 h)</i></li> <li>7. <i>Outline of genetic sampling, potential of the methodology regarding management and conservation aspects (2 h)</i></li> <li>8. <i>Identification and definition of preferential habitats, anthropogenic interactions (3 h)</i></li> <li>9. <i>The role of Cetaceans in the marine trophic network (4 h)</i></li> <li>10. <i>The management and conservation of Cetaceans in the Mediterranean (2 h)</i></li> <li>11. <i>Exercises at sea (12.5 h) on board of appropriate platform.</i></li> </ol> <p><i>The maximum number is 20 students selected according to the enrollment order.</i></p>
<b>Books and bibliography</b>	<i>Buckland S.T., Anderson D.R., Burnham K.P., Laake J.L., Borchers D. L., Thomas L. Advanced Distance Sampling Estimating abundance of biological populations. Oxford University Press.</i>
<b>Additional materials</b>	<i>Additional books occurring in library</i>

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours

Hours			
100	28	12.5 Field activity	59.5
ECTS			
4	3.5	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			
<b>Knowledge and understanding on:</b>		<ul style="list-style-type: none"> <li>○ Know and learn the basic knowledge on biology and Ecology of cetacean species inhabiting Mediterranean Sea.</li> <li>○ Know and learn the ecological role of Cetaceans in the marine food web.</li> <li>○ Know and learn effects of pressures and impacts on marine ecosystem as well as on cetacean species.</li> </ul>	
<b>Applying knowledge and understanding on:</b>		<ul style="list-style-type: none"> <li>○ Skills to collect, process and analyses independently scientific data concerning cetacean's monitoring.</li> <li>○ Skills to understand monitoring techniques aimed to estimate group size and abundance of population, to collect information on acoustic and surface behaviour as well as photo-identification of individuals belonging different species.</li> </ul>	
<b>Soft skills</b>		<ul style="list-style-type: none"> <li>○ <i>Making informed judgments and choices</i></li> <li>○ Contextualization of environmental concerns subject, with interpretation and evaluation of collected, processed and analysed data in order to implement experimental model.</li> <li>○ <i>Communicating knowledge and understanding</i></li> <li>○ Logical, articulated and autonomous exposition of information acquired with adequate linguistic properties</li> <li>○ <i>Capacities to continue learning</i></li> <li>○ 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.</li> </ul>	
Assessment and feedback			
Methods of assessment			
Evaluation criteria		<ul style="list-style-type: none"> <li>○ <i>Knowledge and understanding</i></li> <li>○ Demonstrate knowledge of the theoretical aspects of the entire program provided.</li> <li>○ <i>Applying knowledge and understanding</i></li> <li>○ Demonstrate to understand basic knowledge on monitoring techniques studied during the course</li> <li>○ <i>Autonomy of judgment</i></li> <li>○ Collect and assess useful data to determine autonomous judgments, including reflection on scientific issues focused on the management and conservation of Cetaceans.</li> <li>○ <i>Communication skills</i></li> <li>○ Organization of the knowledge acquired in a logical, independent and inedited version <i>Capacities to continue learning</i>.</li> <li>○ <i>Learning skills</i></li> <li>○ Develop the skills necessary to undertake subsequent studies</li> </ul>	

	independently.
Criteria for assessment and attribution of the final mark	<i>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.</i>
<b>Additional information</b>	