

General information	
Academic subject	Paleontology
Degree course	Natural Sciences
Academic Year	2021-2022
European Credit Transfer and Accumulation System (ECTS)	6
Language	Italian
Academic calendar (starting and ending date)	1 March 2022-17June 2022
Attendance	Strongly recommended

Professor/ Lecturer	
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Department and address	Dipartimento di Scienze della Terra e Geoambientali, Palazzo di Scienze della Terra, Campus Universitario, via E. Orabona 4, 70125 Bari
Virtual headquarters	
Tutoring (time and day)	Always, by previous request by means of email. Palazzo di Scienze della Terra, II floor, University Campus

Syllabus	
Learning Objectives	Knowledge of fossils, their formation in the rocks, deriving information for paleoenvironmental reconstruction. Knowledge of main evolutionary mechanisms of Life. Darwin and following Evolution theories, fossil documentation of Evolution
Course prerequisites	Contents of di Zoology, Ecology, Geology
Contents	The fossil record and its importance for several aims. Control factors influencing fossilization process. Species concept in paleontology. Chronospecies. Monophyletic, paraphyletic and polyphyletic groups. Paratassonomy. Stratinomic process, diagenesis. Time-averaging; Analysis of fossil concentration. Classification of fossil concentrations. Taphonomic feedback. Origin of Life. Main evolutionary steps at the beginning. Ediacara fauna. Evolution, history of evolution thought. The origin of species. Synthetic and punctuated equilibria theories. Evolution rate. Phyletic and phylogenetic trends. Radiation phenomena, background and mass extinctions. Micro- and macro-evolution. Class exercises: thaphonomic analysis of fossiliferous samples.
Books and bibliography	MANUALE di PALEONTOLOGIA FONDAMENTI – APPLICAZIONI. Edizioni Idelson Gnocchi 1908 Srl, April 2020. 472 pp. ISBN: 9788879477147
Additional materials	Pdf files of lectures will be provided

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
Hours			
150	44	7,5	98.5
ECTS			
6	5.5	0.5	98.5
Teaching strategy	Lectures, exercises, discussion in the classroom, comment to scientific video on topic of the course		



Expected learning outcomes	
Knowledge and understanding on:	<p>Knowledge of fossils and fossilization processes integrating the different physical-chemical components involved. Ability to recognize taphonomic features. Knowledge of first fossil documentation of Life on the Earth, and comprehension of fossil value for territory promotion and enhancement. This knowledge is provided by means of class lectures.</p>
Applying knowledge and understanding on:	<p>Knowledge of all the main aspects of taphonomy from the dead of organism to the diagenesis in order to understand relationships with sedimentary environments and their characteristics and to reconstruct the most important paleoenvironmental parameters.</p> <p>Skill to solve elementary paleontological problematic concerning paleoenvironmental reconstruction and to frame fossils in the geological time scale. Ability to transmit the value of fossils as natural capital.</p> <p>These abilities are acquired by means frontal didactic and class exercises.</p>
Soft skills	<p>Making informed judgments and choices Interpretation of fossil content in the rocks for paleoenvironmental reconstruction based on thaphonomic analysis. Ability to link fossil preservational features to chemical-physical environmental parameters. Students are stimulated to discuss together paleontological problematic during class lectures and exercises.</p> <p>Communicating knowledge and understanding Acquisition of scientific glossary e paleontological terminology in order to make clear the exposition of paleontological concepts explained during the class lectures and workshop.</p> <p>Capacities to continue learning Ability to interpret the fossil value for the comprehension of evolution Life through geological time and the enhancement of natural/cultural capital of territory. Skill to use paleontological knowledge and methods for integrating biotic and abiotic components of past environments, improving the connection between the knowledges acquired in several disciplines. Students are involved in class discussion to enhance its skill to learn. .</p>
Assessment and feedback	
Methods of assessment	<p>The final evaluation bases on oral examination and one ongoing test on thaphonomy, and it takes into account: general knowledge of course contents, degree of participation during lectures and exercises, clarity of exposition, language property, synthesis skill and integration with other disciplines. Evaluation is integrated with that of Laboratory of Paleontology course.</p>
Evaluation criteria	<p>Knowledge and understanding At the end of course the student has to show Knowledge of all the themes of the course applying connections among different topics. This is necessary for a positive evaluation.</p> <p>Applying knowledge and understanding At the end of course the student has to show the student had to show his fruitful use of analysis criteria for thaphonomic studies of fossils and fossil concentration, knowledge of evolutionary models arising from fossil record by using examples provided by different taxa from diverse time interval. This ability is necessary for a positive evaluation.</p> <p>Autonomy of judgment Ability to show maturity to discuss and argue simple paleontological topics proposed during the semester making connection between main disciplines such as geology and ecology. This is necessary for a very positive evaluation.</p>



	<p>Communicating knowledge and understanding Ability to clearly explain concepts, propose interpretation by using appropriate language and correct scientific terminology. This may contribute to a very positive evaluation.</p> <p>Communication skills The student has to show skill in explaining paleontological concepts in a simple and linear way without avoid scientific accuracy.</p> <p>Capacities to continue learning The student has to document its ability to improve knowledge independently and enhance its critical thinking during discussion of paleontological themes. This may provide an excellent evaluation.</p>
Criteria for assessment and attribution of the final mark	The evaluation of final exam is expressed as thirtieth. It considers the ongoing test on part of the program, on the rest of course content and on combined evaluation of Laboratory of Paleontology. The intermediate test is not obligatory. It will be taken into account the degree of participation of the student during lectures, exercises and discussion performed in the classroom. Clarity of exposition, language property, synthesis skill and integration with other disciplines will be considered for an elevated final evaluation.
Additional information	