UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze della Terra e del Mare
ACADEMIC YEAR	2016/2017
MASTER'S DEGREE (MSC)	GEOLOGICAL SCIENCES AND TECHNOLOGIES
SUBJECT	FORAMINIFERA BIOSTRATIGRAPHY AND APPLICATIONS
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50566-Discipline geologiche e paleontologiche
CODE	18129
SCIENTIFIC SECTOR(S)	GEO/01
HEAD PROFESSOR(S)	CARUSO ANTONIO Professore Ordinario Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	94
COURSE ACTIVITY (Hrs)	56
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**CARUSO ANTONIO** Monday 9:00 11:00 Stanza del Docente presso il plesso di Biologia Animale di via Archirafi 18, piano terra

DOCENTE: Prof. ANTONIO CARUSO

PREREQUISITES	Basic knowledge of Paleontology and Geology
LEARNING OUTCOMES	Knowledge and understanding Acquiring useful knowledge for the recognition of many species of foraminifera. The student will learn to dating rocks using the foraminifera from the upper Mesozoic up to the present. Part of the course will focus on understanding the phenomena that cause the climatic and environmental changes, providing students with a valuable tool for the development of processes that cause extinctions and subsequent colonization of microorganisms in the oceans. This approach will allow the student to have a broader view of the biological events that have taken place in the world and the processes that have determinants them. Applying knowledge and understanding Ability to recognize and organize the micro and macroscopic observations; interpret data for paleoclimatic reconstructions, paleoecological and paleoenvironmental; ability to dating sedimentary rocks with the help of microfossils Making judgments Being able to evaluate and determine the training environment of a sedimentary rock by determining the fossil content, to get a stratigraphic dating and reconstructing the paleoenvironmental conditions and paleoecology of the environment in which are deposited the sediment communication skills Ability to expose how the depositional environments (marine-lagoon) have influenced and favoured the development of microorganisms and to determine their evolution learning ability ability to tie into a single cognitive framework the macro / microscopic observations with the evolutionary history of the planet's life.
ASSESSMENT METHODS	Exam includes two tests written and oral. The written test is: 1) recognition under the microscope of one thin section of micro facies of sedimentary rock: recognition microfossils classification of rock. 2) optical microscope analysis of two washed of rock for the determination of the content of micro fossil and dating of the sample 3) recognition of 10 species of benthic foraminifera
EDUCATIONAL OBJECTIVES	The educational objectives of this course are to prepare students capable of recognizing associations to microorganisms (especially foraminifera) in sediments and rocks, in order to recognize and distinguish the depositional environments and allow us to date the rocks accurately. The knowledge will be useful to frame the sequences in lithological stratigraphic detail records. These objectives will be critical to create specialized geologists in stratigraphy able to have a good autonomy and to apply the knowledge in the field of oil exploration, the paleoclimatic and paleoenvironmental reconstruction
TEACHING METHODS	Lectures and laboratory exercises with microscopes
SUGGESTED BIBLIOGRAPHY	Appunti del Docente on line Modern Benthic Foraminifera - Barun Sen Gupta, 1999, Kluver Academic Publishers pp.371 Evolution and Geological Significance of Larger Benthic Foraminifera, Marcelle K. BouDagher-Fadel, 2008, Elsevier, pp. 515 Pratical Manual of Oligocene to Middle Miocene Planktonic Foraminifera, 2005, Iaccarino S. & Premoli-Silva I. pp.124 Pratical Manual of Neogene Planktonic Foraminifera, 2007, Iaccarino S. & Premoli-Silva I. pp.122,, 39 plates Plantkon Stratigraphy, Bolli, H.M., Saunders, J.B. Perch-Nielsen, K. Cambridge University

SYLLABUS

Hrs	Frontal teaching
2	The first organisms on earth, evolution of foraminifera, single-celled organisms appeared over 1 billion years.
10	systematic classification of the major groups of benthic foraminifera
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5	Mesozoic and Cenozoic Planktonic foraminiferal schemes
4	High resolution biostratigraphy and cyclostratigraphy useful for the paleoclimate and paleoenvironmental recostructions
4	Ecobiostratigraphy applied to the environmental and paleoclimate recostructions

Hrs	Practice
6	recognition under the microscope of benthic foraminiferal species

Hrs	Practice
10	recognition under the microscope of of planktic foraminiferal species