General Information	
Academic subject	Marine Geology
Degree course	Science and Management of Maritime Activities
Curriculum	Environmental
ECTS credits	6
Compulsory attendance	No
Language	Italian

Subject teacher	Name Surname	Mail address	SSD
	Luisa Sabato	luisa.sabato@uniba.it	GEO/02

ECTS credits details	Area	SSD	ECTS/credits
Basic teaching activities	04/Stratigraphy and Sedimentology	GEO/02	6

Class schedule	
Period	I semester
Year	III
Type of class	Lectures- seminars

Time management	
Hours	150
In-class study hours	48
Out-of-class study hours	102

Academic calendar	
Class begins	Novembre 2020
Class ends	February 2021

Syllabus	
Prerequisites/requirements	Basic knowledge of Earth Science
Expected learning outcomes	*Knowledge and understanding* The student will have to acquire the necessary methodology for the knowledge and understanding of: the subdivision of the main marine sub-environments also in relationship to plate tectonics; the characteristics of the sediments and their distribution on the seabed; the dynamics and sedimentary processes that take place in the marine environment; the instruments and direct and indirect methods of investigation of marine geology. *Applying knowledge and understanding* The student will have to acquire the ability to correctly use the knowledge learned during the course for: observation and description of the geological and sedimentary characteristics of the marine environment; recognition of the dynamics of the marine environment also through the interpretation of the results of direct and indirect investigations carried out for study of different parameters of the seabed. *Making informed judgements and choices* The student will have to acquire and develop the ability to critically study the topics illustrated during the course, in order to identify the most suitable methodological choices for the solution of a problem related to the marine environment with a correct space-time vision. He will also have to acquire useful learning skills to

	undertake future studies in autonomy. *Communicating knowledge and understanding* The student will have to acquire the ability to argue and illustrate the topics covered during the course with a clear and scientifically correct language both during moments of sharing, comparison and discussion during the lessons, and during the oral exam. *Capacities to continue learning* The student must be able to understand the links between the various topics of the course and between these and those ones of other subjects of the Degree Course.
Contents	•
Course program	INTRODUCTION TO MARINE GEOLOGY The evolution of the Earth; composition and structure of the Earth; the drift of the continents; paleomagnetism; plate tectonics; the motions of the lithospheric plates and the expansion of ocean floors; diverging margins; converging margins; transform margins. PHYSIOGRAPHY OF THE OCEAN FLOOR AND BATHYMETRIC PROVINCES Hypsographic curve. The bathymetric provinces of passive continental margins and converging margins. The significance of the platform / slope / basin systems in geodynamic. The canyons and the continental rise. Mid-ocean ridges. Transform faults and fracture zones. Deep ocean basins: flat and abyssal reliefs, seamount and guyot, pits and island arches. SEDIMENTS AND SEDIMENTARY TRANSPORT Characters, classification and distribution of sediments in the seabed (carbonate and siliceous muds, sapropels and black shales, iron sediments, phosphates…). Genesis, classification and properties of sedimentary rocks. Sedimentary processes and tractive and massive transport. Main sedimentary structures. DYNAMICS AND SEDIMENTARY PROCESSES IN LITORAL AND SHALLOW SEA SYSTEMS. ANTHROPIC IMPACT Notes on the dynamics of waves, tides and sea currents; dynamics of depositional systems: delta, beach and platform environments. Anthropogenic impact in coastal areas. Case studies. OCEAN CIRCULATION AND CLASSIFICATION OF DEEP SEA SEDIMENTS Physical, chemical and dynamic characteristics of ocean waters; thermohaline circulation. Marine depositional systems: slope, turbidites, contourites, hemipelagites, pelagic clays. Deposits of wind and volcanic origin; glacio-marine sediments, sediments of extraterrestrial origin. METHODS OF INVESTIGATION OF THE OCEAN FLOOR Direct (sampling, surveys ...) and indirect (Side Scan Sonar, Single and Multi Beam, reflection seismic ...) investigation methods.
Bibliography	BOSELLINI A., MUTTI E., RICCI LUCCHI F. (1989) - *Rocce e successioni sedimentarie*. UTET DOGLIONI C. (1991) - *Una interpretazione della Tettonica Globale*. Le Scienze, 270, 32-4 KENNETT J. (1982) - *Marine Geology* – Prentice Hall, London. RICCI LUCCHI F. (1992)- Bologna
Notes	The teacher recommends specific readings on some topics.
Teaching methods	Lectures, also recorded in e-learning mode. Lectures are supported by seminars and exercises carried out in the classroom on some topics of the course. Lessons, seminars and exercises are followed, where necessary, by a discussion with students in the classroom. During the lessons, powerpoint presentations, diagrams, thematic maps are used.
Assessment methods (indicate at least the type	During the course, one or two *in itinere* tests / verifications may be carried out, relating to the topics covered in class and articulated in the form of questionnaires characterized by open questions and / or multiple answers. The result can be taken

written, oral, other)	into account in the final evaluation. The final exam consists of an oral exam covering all the topics included in the program. The relative evaluation is expressed with a mark out of thirty, with possible honors.
Evaluation criteria	*Knowledge and understanding* The student will have to demonstrate knowledge of the fundamental concepts of marine geology, having clear the distribution of sediments and sub-environments in the various areas of the seabed; will have to know the dynamics of sedimentary processes occurring in the marine environment, as well as the different methodologies used for its study. The understanding and possession of the fundamental concepts is a necessary condition for passing the exam. *Applying knowledge and understanding* The student must demonstrate to be able to correctly use the knowledge acquired during the course necessary to describe the geological and sedimentary characteristics of the marine environment and to recognize the dynamics of the marine environment also through examples of results of direct and indirect investigations carried out for the study of different parameters of the seabed. Mastery of these skills is a necessary requirement for passing the exam *Autonomy of judgment* The student must be able to solve a geological question related to the topics of the course, making the most suitable methodological choices to solve the problem. The demonstration of having good autonomy in this field will contribute to a very positive evaluation of the final exam *Communicating knowledge and understanding* The student must be able to describe clearly and with language properties all the topics covered during the course. Possession of these skills will be reflected in an increase in the final mark, with the possibility of reaching the maximum. *Capacities to continue learning* The student must be able to independently acquire further knowledge starting from the basis of the contents transmitted during the course, and making connections with other subjects of the course of the Degree Course. The demonstrated ability to autonomously enrich one's knowledge will contribute to a more than positive evaluation of the final exam, up to the achievement of the maximum.
Further information	