UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO

DIPARTIMENTO JONICO IN "SISTEMI GIURIDICI ED ECONOMICI DEL MEDITERRANEO: SOCIETÀ, AMBIENTE, CULTURE"

| **General information** | |
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| Academic subject | Ecology |
| Degree course | Science and Management of Maritime Activities |
| Academic Year | 2022/23 |
| European Credit Transfer and Accumulation System (ECTS) | 10 |
| Language | Italian |
| Academic calendar (starting and ending date) | October 2022-January 2023 |
| Attendance | Yes |

| **Professor/ Lecturer** | |
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| Department and address | Biology – via Orabona, 4 |
| Virtual headquarters | piattaforma TEAMS – codice 56yls3w |
| Tutoring (time and day) | Wednesday and Thursday, 2pm - 3pm |

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| ***Syllabus*** | |
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| **Learning Objectives** | The acquisition of a systemic conception of the environment; it will be able to predict possible effects due to environmental and/or anthropic variations and finally to evaluate the environmental quality of a site using appropriate analytical descriptors. |
| **Course prerequisites** | Acquisition of the methodology necessary for the knowledge and understanding of the basic ecology elements indicated in the program. |
| **Contents** | SYSTEMATIC ECOLOGY<br><br>Ecosystem concept. Stability of environmental systems: (resistance and resilience). Fundamental concepts on energy. Solar spectrum. Productivity concept. Productivity in the aquatic and terrestrial environment. Food chains, trophic webs and trophic levels. Ecological pyramids. Biological magnification. |

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| | BIOGEOCHEMICAL CYCLES<br><br>Atmosphere (composition and structure, precipitation, wind, climate). Hydrosphere (water resources, main water compartments). Hydrological cycle. Carbon cycle. Greenhouse effect and climate change. Nitrogen cycle. Dry and wet acid depositions.<br><br>MARINE BIOLOGICAL RESOURCES<br><br>General concept of resource. Renewable and non-renewable resources. The biological marine resources and their distribution Organisms of plankton, benthos and necton: general characteristics. Fisheries science. Methodologies and tools for research in marine biology. Sampling of marine organisms: plankton, benthos and necton. Assessment and management of the biologicaL marine resources |
| **Books and bibliography** | ▪ Appunti di ecologia e spunti di sostenibilità. G. D'Onghia libreriauniversitaria.it, 186 pgg.<br>▪ Elementi di Ecologia. T. M. Smith - R.L. Smith - Pearson Ed., 9/Ed.., Ediz. italiana a cura di A. Occhipinti, G. Badino, M. Cantonati. |
| **Additional materials** | |

| **Work schedule** | | | |
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| Total | Lectures | Hands on (Laboratory, working groups, seminars, field trips) | Out-of-class study hours/ Self-study hours |
| **Hours** | | | |
| 87 | 72 | 15 | |
| **ECTS** | | | |
| 10 | 9 | 1 | |

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| **Teaching strategy** | |
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| **Expected learning outcomes** | |
| **Knowledge and understanding on:** | ○ Acquisition of the methodology necessary for the knowledge and understanding of the basic ecology elements indicated in the program. |
| **Applying knowledge and understanding on:** | ○ The acquisition of the methodology necessary for the application of knowledge and understanding of the basic principles of ecology indicated in the program with reference to the concept of ecosystem and stability of environmental systems. Fundamental concepts on energy. Primary productivity in aquatic and terrestrial environments. Food chains and food webs. |
| **Soft skills** | • *Making informed judgments and choices*<br>○ The acquisition and development of the critical study capacity on the ecology indicated in the teaching program, also through the critical study of the most significant literature on the individual subjects under study by means of didactic activities of a seminar type.<br>• *Communicating knowledge and understanding* |

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| | ○ The acquisition of the ability to argue on the fundamental principles of ecology, to be able to communicate well and argue in moments of sharing, discussion and discussion in the classroom, both individually and in groups.<br>• *Capacities to continue learning*<br>○ The acquisition of the methodology necessary for learning, the mastery of the discipline, the critical study of the main concepts of ecology, of the most significant literature existing on the subjects studied in the program carried out. |

| **Assessment and feedback** | |
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| Methods of assessment | The verification consists of multiple-choice questions. Each candidate must answer 30 questions randomly extracted through the speedy test program; the evaluation of the verification is expressed in thirtieths |
| Evaluation criteria | • *Knowledge and understanding*<br>○ At the end of the course the student may have acquired a systemic conception of the environment; it will be able to predict possible effects due to environmental and/or anthropic variations and finally to evaluate the environmental quality of a site using appropriate analytical descriptors.<br>• *Applying knowledge and understanding*<br>○ In addition to having acquired the individual notions provided during the course, the student will have to demonstrate the ability to integrate knowledge on the individual components of the marine environment in a holistic perspective. Knowledge of the notions alone will be assessed not beyond an average level.<br>• *Autonomy of judgment*<br>○ The acquisition of the ability to argue on the fundamental principles of ecology, to acquire autonomy in moments of confrontation both individually and in a group.<br>• *Communicating knowledge and understanding*<br>○ The demonstration of knowing how to evaluate and interpret experimental data, case studies and trends in ecological models is indicative of full preparation maturity and allows to obtain a very positive evaluation.<br>• *Communication skills*<br>○ Having acquired competence in the quality of the exposure, using a specialized language but at the same time linear.<br>• *Capacities to continue learning*<br>○ The ability to transfer the contents of marine ecology and formulate interpretations with clarity and correct terminology are essential for decision makers and will be evaluated very positively. |
| Criteria for assessment and attribution of the final mark | The final grade is awarded out of thirty. The exam is carried out orally and is passed when the grade is higher or equal to 18. In order to achieve a high evaluation, the student must have developed autonomy of judgment and adequate capacity for argumentation and presentation. If these requirements are met, the laud will be awarded. |
| **Additional information** | |
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