

TEACHING SCHEDULE: Applied Ecology
LECTURER: Prof. Roberto Carlucci
A.A. 2019-2020

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| Teaching | Applied Ecology | | |
| SSD | BIO/07 | | |
| Year of study | 2019-2020 | | |
| Code of Teaching | 019009 | | |
| Semester | I | | |
| Lecturer | Prof. Angelo Tursi | | |
| Credits | 6 (4 frontal lessons + 2 exercises) | | |
| Lessons | 1 st october – 15 th january | | |
| Preparatories | NO | | |
| Prerequisites | The teaching of Applied Ecology is designed as an interdisciplinary study programme that aims to provide knowledge on the interactions between the biotic and abiotic components in the marine and terrestrial ecosystems in their natural state or human impacted condition. Therefore, the prerequisites required to the student are inherent the basic knowledge for the subjects related to biology, geology, mathematics, physics and chemistry. | | |
| Formative objectives | The specific expertise developed by the teaching of Applied Ecology will enhance the student in multidiscipline skills with attention paid to the modelling, assessment and restoration of environmental systems. In this regard, the frequency of lectures, laboratory and work on field favour the student's ability to collect, process and analyse independently scientific data concerning environmental systems at different spatial and temporal scale, preparing him to the planning of experimental models and their evaluation and synthetic reporting. | | |
| Teaching methods | Front Lessons | Laboratory + Exercises | Total |
| <i>Assisted teaching hours</i> | 36 | 30 | 66 |
| <i>Individual study hours</i> | | | |
| <i>Credits</i> | 4 | 2 | 6 |
| Evaluation methods | <p><i>Student assessment includes an oral test articulated on the entire program provided for teaching. It checks the understanding of theoretical and modelling aspects as well as the multidisciplinary problem-solving skills. The score of the examination paper is attributed by a vote expressed in thirtieths. In the evaluation, it will take into consideration the following elements:</i></p> <ol style="list-style-type: none"> <i>1. Contextualization of environmental concerns subject;</i> <i>2. Organization of the knowledge acquired in an independent and inedited version;</i> <i>3. Consistency of logic-experimental construct and linguistic properties;</i> <i>4. Adequacy in methodological and instrumental processing.</i> <p><i>Partial satisfaction of the aspects 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 four aspects 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, however, demonstrate that have gained an excellent knowledge of all topics covered during the teaching.</i></p> | | |
| Program | <p>Program of Applied Ecology (6 CFU) A.A. 2019-2020 Introduction: Contents, methodologies; study cases ATMOSPHERE: Structure of the Atmosphere; Solar radiation; Atmospheric temperature Atmospheric pressure and movements of air masses (Ventosity) General principles of climatology and meteorology Ozone and catalytic processes of destruction AIR POLLUTION Ozone and non-catalytic destruction processes</p> | | |

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| | <p>SMOG photochemical; CFCs Nitrogen oxides and sulfur oxides Atmospheric particulate PM10 and PM2.5; Indoor pollution Wet deposits CO2 and greenhouse effect Greenhouse effect and climate change REMOTE SENSING Basic principles of remote sensing by satellite GIS AND SIT Territorial Information Systems and GIS: practical use in biology SOIL Soil structure Nature, composition and evolution of soils in various ecosystems SOIL INJURY: Soil Pollution: Dumps SOIL DEPURATION: Soil organic pollutants: pesticides and fertilizers WATER: Summary of the Water Cycle with respect to the groundwater AQUATIC TROPHIC NETWORKS Organization of trophic networks in aquatic environments Damages in trophic structure and functions (domino effect) Biological damage related to Biomagnification SURFACE WATER POLLUTION DL 152/06: Definition; Quality criteria; Acceptability limits; Quality objectives; Causal causes of water pollution THERMAL LOAD ASSESSMENT Natural and anthropic phenomena of water overheating Evaluation of acceptable thermal loads and estimation of biological effects TROPIC LOAD ASSESSMENT Causes of aquatic trophic load: Study of nitrogen and phosphorus Evaluation of eligible trophic loads in waters ORGANIC LOAD ASSESSMENT Causes of organic loading accumulation in water Estimate of organic loading in water BIOMANIPULATION OF WATER BODIES General Principles and Techniques of Biomanipulation and Bioremediation WATER REGULATIONS: D.L. 152/06; Community Directive 2000/60</p> |
| Reference texts | <p>A. Proveni, S. Galassi, R. Marchetti: Ecologia Applicata – Nuova Ed. 2008, Città Studi Edizioni 2) BAIRD - Chimica dell'ambiente. Nuova ed. 2008 3) Dispense e documentazione messa a disposizione degli studenti sul sito web.</p> |
| Extensive texts and teaching tools | <p>Teaching support is provided with slide shows in Microsoft Office Power Point and laboratory and field exercises are conducted. Further teaching material is provided directly by the teacher.</p> |