



COURSE: Applied Ecology			
ACADEMIC YEAR: 2019-20			
TYPE OF EDUCATIONAL ACTIVITY: Characterizing			
TEACHER: Maria Ragosta			
e-mail: <a href="mailto:maria.ragosta@unibas.it">maria.ragosta@unibas.it</a>		web Ragosta: <a href="http://docenti.unibas.it/site/home/docente.html?m=001404">http://docenti.unibas.it/site/home/docente.html?m=001404</a>	
phone: Ragosta +39 971 205206		mobile (optional):	
Language: Italian			
ECTS: 6	n. of hours: 54	Campus: Potenza School of Engineering Graduate course in Environmental and Territorial Engineering	Semester: I

#### EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

##### **Educational Goals**

The student will have to acquire knowledge of basic elements of ecosystems and the impact of anthropic activities on them, and will also to acquire practical methodologies for measuring and evaluating these impacts and methodologies of data analysis for studying complex systems.

##### **Expected Learning Outcomes**

The aim is to develop skills and competences necessary to identify, measure and characterize the changes in the biosystems due to the impact of anthropic activities in the context of environmental sustainability. Students will acquire: basic elements of ecosystems; biogeochemical processes of ecosystems; methods for ecosystem recovery; impacts of anthropic activities on ecosystems; the concepts of air quality and soil quality; chemical, physical and biological methods for monitoring changes in ecosystems; method of data analysis for the characterization of complex systems; methods to approach the management of environmental problems.

##### **Knowledge And Understanding**

The student must acquire knowledge and methodologies for solving problems related to the analysis and the evaluation of the impact of human activities on the biosystems.

##### **Applying Knowledge And Understanding**

The student has to be able to analyze the consequences of anthropic activities impact on ecosystems, to apply and to integrate the acquired knowledge for the characterization of a complex system subject to environmental stress phenomena

##### **Making Judgments**

The student has to be able, autonomously, to evaluate the different processes in a biosystem and to indicate a possible action strategy for the reduction of impacts

##### **Communication Skills**

The student must know how to present a topic with the correct technical and scientific language, and he must be able to explain the concepts acquired in a simple and correct ways even to no-expert users.

##### **Learning Skills**

The student will be able to approach the study of a biosystem, as a complex system, characterized by a correlation structure based on a large number of variables, with numerous feedback mechanisms and external forcing

#### PRE-REQUIREMENTS

None.

#### SYLLABUS

Ecosystems and biodiversity; biogeochemical processes of ecosystems; ecosystems recovery. Chemical and physical methods for evaluating the impacts of anthropic activities on ecosystems: air and soil pollution. Concept of air quality and soil quality. Methodologies of data analysis.



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#### TEACHING METHODS

Theoretical lessons, Classroom tutorials..

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#### EVALUATION METHODS

Oral examination (It is optional to discuss one specific topic by means of a technical-scientific elaborate)

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#### TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

Textbooks: a manual of Applied Ecology (Foreign students can ask the teacher directly for texts in English or French)

On-line educational material: During the course all the useful teaching material, both in Italian and possibly in English, will be made available on line through the teacher's webpage

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#### INTERACTION WITH STUDENTS

All the notices concerning the course, the examinations, the educational materials are distributed in the classroom and are made available on-line through the teacher's web page.

Office hours: Tuesday and Wednesday from 15.00 to 17.00 (after appointment) and Thursdays from 11.00 to 13.00 at the office 74, V floor, Engineering School, Macchia Romana campus, Potenza. Students may use email address for further contacts.

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#### EXAMINATION SESSIONS (FORECAST)<sup>1</sup>

21-01-2020; 18-02-2020; 17-03-2020; 21-04-2020; 19-05-2020; 23-06-2020; 14-07-2020; 24-09-2020; 20-10-2020; 17-11-2020; 15-12-2020.

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SEMINARS BY EXTERNAL EXPERTS    YES X    NO

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#### FURTHER INFORMATION

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<sup>1</sup> Subject to possible changes: check the web site of the Teacher or the Department/School for updates.