



COURSE: Applied ecology			
ACADEMIC YEAR: 2016/17			
TYPE OF EDUCATIONAL ACTIVITY: Basic			
TEACHER: Prof. Daniele Mascanzoni			
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phone: 0971 205116		mobile (optional): 339 8922884	
Language: Italian			
ECTS: 6 (lessons e tutorials/practice)	n. of hours: 54 (lessons e tutorials/practice)	Campus: Potenza Dept./School: Scuola di Ingegneria Program: 236	Semester: I

#### EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

**Knowledge:** Basic knowledge of ecology, climate change and its consequences. Population dynamics, energy flows and growth models aimed at studying the consequences for the ecosystem of human activities, with particular emphasis on waste production and management. Study of natural and agricultural environments. Key risk factors, relationship between exposure, dose and effect. Introduction to toxicology. Sustainable development and ecological economics. Consequences for the ecosystem of energy production. Basic principles of radioecology: radioactive pollution and assessment of its risks. Transfer/accumulation of toxic substances to the human food chain. Use of bio-indicators as a tool for monitoring environmental contamination.

**Skills:** Critical analysis of the consequences of human activities on the environment, with regard to industrial development, air pollution, loss of biodiversity, exploitation of natural resources and habitat degradation. Ecology applied to engineering issues and feasibility of solutions to environmental problems.

**Knowledge and understanding capacity:** The student must be able to analyze and understand the issues raised by the impact of industrial development on the ecosystems.

**Capacity of applying the acquired knowledge:** The student must be able to apply the acquired knowledge in other situations than those described in the course.

**Judgment:** The student must be able to independently assess different environmental issues and indicate the most appropriate solutions.

**Communication skills:** The student must be able to explain the acquired knowledge in an easy and correct manner, even to unschooled persons. At the same time the student must be able to write a technical/scientific paper in a proper language.

**Learning skills:** The student must pursue a life-long learning, also through specialization and Master programs.

#### PRE-REQUIREMENTS

Bachelor's Degree and fundamental knowledge of physics and chemistry, with at least 36 ECTS within scientific disciplines (MAT / 03, MAT / 05, MAT / 06, MAT / 07, MAT / 08 FIS / 01, CHIM / 07, ING-INF / 05).

#### SYLLABUS

The course is equally divided into two parts, the first dealing with ecology and the second with applied ecology.

#### TEACHING METHODS

The course includes 54 hours of theoretical lessons, with the opportunity of deepening into specific issues according to the students' interests.

#### EVALUATION METHODS

Oral examination. The purpose of the examination is to verify the learning level of the students and their ability to bring into comparison different aspects of the matters covered by the course. To pass the test the student must achieve at least 18 points out of 30.

#### TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

W.P. Cunningham, M.A.Cunningham & B.W. Saigo. Fondamenti di Ecologia, McGraw Hill

W.P. Cunningham, M.A.Cunningham & B.W. Saigo. Ecologia Applicata, McGraw Hill



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#### INTERACTION WITH THE STUDENTS

At its start the course is presented, along with its objective, program, examination procedure and educational material. Information on office hours is also given. The students who will attend the course are asked to fill a list with name, registration number and email address.

Office hours: Tuesday and Wednesday after the lessons in the teacher's office. The teacher can also be contacted any other day by telephone or email.

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#### EXAMINATION SCHEDULE (TENTATIVE)<sup>1</sup>

6/2/2017, 7/2/2017, 19/4/2017, 20/4/2017, 11/7/2017, 12/7/2017, 24/10/2017, 22/11/2017, 13/12/2017

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SEMINARS BY EXTERNAL EXPERTS    YES     NO

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FURTHER INFORMATION

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<sup>1</sup> Subject to possible changes: contact the teacher and/or check the web pages of the Department/School for updates.