SCUOLA DI SCIENZE AGRARIE, FORESTALI, ALIMENTARI ED AMBIENTALI

ACADEMIC YEAR: 2016-2017

COURSE: Soil Pollution and Bioremediation

TYPE OF EDUCATIONAL ACTIVITY: Basic

TEACHER: Adriano Sofo

e-mail: adriano.sofo@unibas.it	Web: http://oldwww.unibas.it/utenti/sofo/home-eng.htm Google Scholar Citation Profile Scopus Author ID: 6602840446 Web of Science Researcher ID: L-6668-2014 ORCID ID: 0000-0003-0305-308X
Phone: +39 0971 206228	mobile: +39 320 4371069
Language: Italian	

ECTS: (lessons / tutorials/practice): 6	n. of hours: 32 hours of lessons 16 hours of practice	Campus: Potenza School: SAFE Program: LM Forest and Environmental Sciences	Semester: II

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

Soil pollution is one of the main problems today, due to the destruction of habitat, biodiversity and ecological balance, and because it is one of the main factors endangering human health and life. During the course, students will learn theoretical and practical skills on the different forms of soil pollution and on the mechanisms that contribute to its spread, as they exist. For each form of soil contamination, all the techniques aimed to eliminate this problem or mitigate their harmful effects will be examined.

PREREQUIREMENTS

- Inorganic chemistry
- Forest ecology and general silviculture

SYLLABUS

Lessons

1. SOIL POLLUTION
1.1 The concept of environment
1.2 Definition of Soil Pollution
1.3 Contaminated sites and types
1.4 Types of intervention
1.5 Treatment techniques

2. THE BIOREMEDIATION
2.1 The bioremediation
2.2 Plants and micro-organisms: their use in remediation of contaminated sites
2.3 Cell energetic processes in plants and microorganisms
2.4 Organisms of environmental importance

3. APPLIED BIOREMEDIATION
3.1 Methods of bioremediation for heavy metals and other xenobiotics
3.2 Bioremediation applied to the soil and water contaminated by hydrocarbons
3.3 Other examples of bioremediation

Practices

Case studies on forest and soil systems. Laboratory training regarding biochemical and physiological plant and soil measurements.

SCUOLA DI SCIENZE AGRARIE, FORESTALI, ALIMENTARI ED AMBIENTALI

TEACHING METHODS

32 hours of lessons 16 hours of laboratory and field practices. During practices, students will be asked to analyze specific case studies and to work in the laboratory.

EVALUATION METHODS

Written examination at the end of the course (seven questions related to topics and three to practices). If the score of the writing exam is not enough (< 18/30), an oral examination is mandatory.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

Paolo Sequi. Chimica del suolo. Patron Editore.
Carli Anna M.; Pane Luigi; Mariottini G. Luigi. Elementi di ecologia applicata. Inquinamento del suolo. ECIG
Reviews and articles provided during the course.

INTERACTIONS WITH STUDENTS

- in the office at planned days/hours (usually on Tuesday, Wednesday and Thursday)
- email, skype (every time)
- mobile (every time)

EXAMINATION SESSIONS (Forecast)

Calendar online:

https://unibas.esse3.cineca.it/Home.do

Usually the third Wednesday of every month (except August)

EVALUATION BOARD

Adriano Sofo
Antonio Scopa
Maria Nuzzaci

SEMINARS BY EXTERNAL EXPERTS YES