**ACADEMIC YEAR: 2016-2017**

COURSE: Ecology of agroecosystems

TYPE OF EDUCATIONAL ACTIVITY: Basic

TEACHER: Anna Rita Rivelli

| | |
|---|---|
| e-mail: annarita.rivelli@unibas.it | Web: http://scholar.google.it/citations?hl=it&user=YF-xWx4AAAAJ |
| Phone: 0971 205382 | mobile: 329 3606263 |
| Language: Italian | |

| | | | |
|---|---|---|---|
| ECTS: (lessons / tutorials/practice): 8 | n. of hours:<br>56 hours of lessons<br>16 hours of practice | Campus: Potenza<br>School: SAFE<br>Program: LM Agricultural Sciences and Technologies | Semester: II |

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The course aims to provide basic knowledge on structure and functioning of natural ecosystems and agro-ecosystems in particular. The course focuses on the analysis and interpretation of the interactions between agriculture and environment, on the effects of cultivation management on productivity and rationalization of auxiliary energies, conservation and soil management to preserve fertility, the complexification of biocenosis, the role of biodiversity, the sustainability and environmental protection. The course also provides conceptual and methodological notes of the evolution of ecology in land use planning and the agriculture in protected areas and national parks

PREREQUIREMENTS

- LT (3-year degree): Agricultural Sciences
- Agronomy and crop management

SYLLABUS

**Lessons**

Ecosystem: definition, structure and functionality. Interactions between organisms and environment. Cycle of matter and energy. Productivity and food chains. Ecological niches and pyramids, trophic levels. The biogeochemical cycles: carbon, oxygen, nitrogen, phosphorus, sulfur and water. Role of biodiversity. The agro-ecosystems: characteristics, evolution and components; the role of farmers. Productivity: Primary gross, net, growth indices. Cultural practices and environmental impact. Complexification of biotic communities, maintenance and management of soil fertility, rationalization of auxiliary energy. Soil and water pollution and remediation. Sustainable development and biodiversity conservation. Crop responses and climate changes. Elements of land use planning, agriculture in parks and protected areas.

**Practices**

Case studies on the management of agro-ecosystems, with particular reference to the Mediterranean environments. Use of process-based model to predict the carbon uptake and auxiliary energies of agroecosystems.

TEACHING METHODS

56 hours of lessons and 16 hours of laboratory and field practices. During practices students will be asked to analyze specific agroecosystem management case studies.

EVALUATION METHODS

Oral examination at the end of the course. Three questions, one of which related to topics addressed during practices.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

- Odum E. 1988. Basi di Ecologia, Piccin Ed. Padova; Susmel L. 2001. Principi di Ecologia: Fattori ecologici, Ecosistemica, Applicazioni. CLEUP Editore, Padova
- Caporali F., Campiglia E., Mancinelli R. 2010. Agroecologia, Teoria e Pratica degli agroecosistemi. Città Studi Edizioni, Torino; Borin C. 1999. Introduzione all'ecologia del sistema agricoltura. CLEUP Ed. Padova.

INTERACTIONS WITH STUDENTS
- in the office at planned days/hours
- email, skype (every time)
- mobile (every time)

EXAMINATION SESSIONS (Forecast)

Calendar online:

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

EVALUATION BOARD

Anna Rita Rivelli
Michele Perniola; Piergiorgio Gherbin
Stella Lovelli; Susanna De Maria

SEMINARS BY EXTERNAL EXPERTS YES