



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Agrarie, Alimentari e Forestali		
ACADEMIC YEAR	2016/2017		
BACHELOR'S DEGREE (BSC)	AGRICULTURAL ENGINEERING		
SUBJECT	AGRICULTURAL CHEMISTRY		
TYPE OF EDUCATIONAL ACTIVITY	B		
AMBIT	50125-Discipline della produzione vegetale		
CODE	18801		
SCIENTIFIC SECTOR(S)	AGR/13		
HEAD PROFESSOR(S)	LAUDICINA VITO ARMANDO	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)			
CREDITS	8		
INDIVIDUAL STUDY (Hrs)	136		
COURSE ACTIVITY (Hrs)	64		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	2		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	LAUDICINA VITO ARMANDO Wednesday 11:00 14:00 Dip. SAAF, 1° piano, studio 142		

DOCENTE: Prof. VITO ARMANDO LAUDICINA

PREREQUISITES	The student that attends the course of "Agricultural Chemistry" is need basic knowledge about general chemistry and organic.
LEARNING OUTCOMES	<p>Knowledge and understanding skill: the student will acquire the skill to understand the nutrient dynamics into the soil.</p> <p>Skill in applying knowledge and understanding: the student will be able to utilize soil data to evaluate the soil fertility and to plan its sustainable use.</p> <p>Autonomy of judgement: the student will be able to interpret soil data and to foresee the soil suitability for a specific use. Furthermore, the student will be able to foresee the flux of soil nutrients.</p> <p>Communication skill: the student will be able to describe the soil properties and the results of a certificate soil analysis.</p> <p>Learning skill: the student will be able to go into the biogeochemical processes of soil nutrients by using textbooks and research articles published in the category of soil science.</p>
ASSESSMENT METHODS	<p>Intermediate tests and oral exam at the end of the course;</p> <p>Objective of the intermediate tests is to evaluate the learning of explained subjects;</p> <p>Objective of the oral exam at the end of the course is to evaluate the learning of all explained subjects and the critical ability to discuss the results of a soil analysis;</p> <p>The duration of the intermediate test is of 1 hour;</p> <p>The duration of the oral exam is of about 30 minutes;</p> <p>The minimum mark of the oral exam is 18; the maximum mark of the oral exam is 30 cum laude;</p> <p>The oral exam is passed with the minimum mark (18) when the student has a basic knowledge of explained subjects.</p> <p>The oral exam is passed with the maximum mark (30) when the student has a very good knowledge of the explained subjects and a good critical ability to discuss the results of a soil analysis.</p>
EDUCATIONAL OBJECTIVES	The student will be provided with the tools to understand the soil resource and to carry out physical and chemical soil analyses. In particular, during the course, soil properties will be explained and discussed in order to understand the soil attitude to tillage, irrigation, crop choice and fertilisation. At the end of the course, the student will have acquired the required knowledges for the determination of the main physical and chemical soil properties and for the interpretation of soil data.
TEACHING METHODS	The course is structured in frontal lessons and laboratory exercises.
SUGGESTED BIBLIOGRAPHY	<p>1. Sequi P., 2005. Fondamenti di chimica del suolo. Patron Editore. Bologna.</p> <p>2. Weil R.R., Brady N.C., 2016. The Nature and Properties of Soils, 15th edition. Pearson Education, Inc., Boston, USA.</p>

SYLLABUS

Hrs	Frontal teaching
1	The concept of soil. Ecosystem services provided by soil.
8	Soil mineral and organic constituents.
4	Formation of soils from parent materials.
4	The colloidal fraction of soil. Sources of charges on soil colloids.
8	Soil physical properties. Soil water: characteristics and behaviour. Soil aeration and temperature.
9	Organisms and ecology of the soil. Soil organic matter.
8	Soil nutrients and their cycles. Soil fertilizers.
6	Soil acidity, alkalinity, salinity and sodicity.
Hrs	Practice
4	Soil sampling and soil preparation. Soil sieving.
4	Determination of soil reaction, electrical conductivity and total carbonates.
2	Determination of soil texture.
2	Determination of cation exchange capacity.
2	Determination of soil organic matter.
2	Determination of total nitrogen.