



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	
ACADEMIC YEAR	
ANNO ACCADEMICO EROGAZIONE	
SUBJECT	
CODE	
SCIENTIFIC SECTOR(S)	
HEAD PROFESSOR(S)	GRISTINA LUCIANO Professore Ordinario Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	
TERM (SEMESTER)	
ATTENDANCE	
EVALUATION	
TEACHER OFFICE HOURS	GRISTINA LUCIANO Monday 8:00 10:00 Ufficio - Edificio 4 - secondo piano

DOCENTE: Prof. LUCIANO GRISTINA

PREREQUISITES	Basic knowledge of Matematics, Physic and chemistry
LEARNING OUTCOMES	Students must acquire a specific and updated technical vocabulary and must learn to present agronomic problems with a correct and proper technical language. Students must be able to understand the meaning of the main environmental and technological factors that influence the soil-plant systems and must be able to explain their importance for agriculture and describe the expected relationships. Students must be able to explain the main reasons that back the choices of different agronomic managements frequently adopted by farmers. They must be able to solve simple calculations about soil, soil hydrology, irrigation, meteorology , fertilization. Students must be able to give examples for possible alternatives to choose the most appropriate management strategies and they must be able to discuss reasons for performing such choices depending on different soil-climate scenarios.
ASSESSMENT METHODS	Final assessment aims to evaluate whether the student has knowledge and understanding of the topics, has acquired interpretative competence and independence of judgment in concrete cases. Every day some time is spent to collect questions from students. Examples of solved exercise is published on the Web. About 10 hours of the overall contact time is used for practical work in class. The final examination is oral
EDUCATIONAL OBJECTIVES	The Agronomy course is the introductory study of the relationships between the agricultural crop production and the several human and natural factors that determine and control crop production. A detailed analyses is given to the classification and comprehension of the mechanisms through which climate and soil influence crop growth. production. The variety of possible actions applied in agriculture to favor crop cultivation is presented: systems to control soil slope and infiltration/runoff, to modify crop micro-climate, to manage soil tillage, irrigation and drainage, fertilization, crop residues management, green manuring, weed management, rotation and cover crops management. This course is also an introduction to the study of the relationships between agriculture and the environment, of the agricultural land management, of the characterization of the different forms of agriculture (conventional, sustainable, organic). The Agronomy course is a base for other more specialized disciplines on the different aspect of plant cultivations (field crops, forage crops, vegetable and fruit plants), more specifically for the agricultural mechanization, hydraulic and irrigation, agro-meteorology, weed science.
TEACHING METHODS	The course consists of about 42 hours of lectures and about 18 hours devoted to numerical excersices, problem solving and field visits.
SUGGESTED BIBLIOGRAPHY	I testi base consigliati per il corso sono: Giardini L., 2002 Agronomia generale, ambientale e aziendale. 5a edizione, Patron Ed. Bologna o (meglio) edizioni successive.

SYLLABUS

Hrs	Frontal teaching
2	Factors of agricultural crop production: the soil-plant-atmosphere system; agronomic and crop responses. quantitative and qualitative responses.
4	The climate: temperature - the temperature and plants - temperature and agronomia management- hydrometeors
4	The soil organic matter: Origin, humus and humic budget
4	water potential in the soil - matric potential - changes in water content in soil - moisture measurement ' - determination of some hydrological constants - Soil water Dynamic
4	Soil tillage systems and management
4	Retention of excess water - waterlogging - defense by the soil erosion - drainage - runoff - water erosion - of sloping land.
4	Principles and techniques of irrigation - suitability 'land - suitability' of water - water consumption - the irrigated variables - volume of irrigation - moment of irrigation interventions - irrigation methods
4	Systems and cultivation techniqnes in dry regime - soil water budget - water use efficiency- increase in availability 'useful water - reducing losses evapotranspiration.
4	The mineral fertilizers - chemical fertilizers - the answer to the fertilization rate of absorption - Availability 'in the ground - the optimal dose of fertilizer - losses and residual effect - Mechanical distribution - fertilization programs - qualitative response to fertilization
4	The fight against weeds - the competition between the plants - means of preventive struggle - physical media direct - biological means - chemical weed control - mode 'application - mechanism of action - selectivity ' - side effects and residues - the behavior of herbicides in soil-movements in ground and run-off - photochemical decomposition and chemical - absorpion and degradation bythe plant - microbiological degradation

SYLLABUS

Hrs	Frontal teaching
4	agronomic principles to combat desertification - agronomic means to improve water use efficiency
Hrs	Practice
18	Esercisse Field application