



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	
ACADEMIC YEAR	
ANNO ACCADEMICO EROGAZIONE	
SUBJECT	
CODE	
SCIENTIFIC SECTOR(S)	
HEAD PROFESSOR(S)	LO BIANCO RICCARDO Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	
TERM (SEMESTER)	
ATTENDANCE	
EVALUATION	
TEACHER OFFICE HOURS	LO BIANCO RICCARDO Tuesday 11:00 12:00 Ufficio: Dipartimento SAAF, edificio 4, ingresso H, PT-17 Thursday 11:00 12:00 Ufficio: Dipartimento SAAF, edificio 4, ingresso H, PT-17

DOCENTE: Prof. RICCARDO LO BIANCO

PREREQUISITES	basic knowledge of agronomy and horticulture
LEARNING OUTCOMES	<p>Knowledge and comprehension: acquiring the scientific bases to understand the mechanisms and dynamics regulating tree water uptake and status in order to develop the appropriate irrigation management plan for tree fruits.</p> <p>Applying knowledge and understanding: ability to evaluate and quantify the irrigation needs of fruit trees, based on economic and environmental sustainability.</p> <p>Making judgments: ability to gather and interpret weather and physiological data useful for determining irrigation needs of fruit trees, as well as for considering related social and scientific issues.</p> <p>Communication skills: ability to use the specific language also to a non-expert audience; ability to instruct tree growers with the most appropriate technical options for the design and management of irrigation strategies for fruit production.</p> <p>Learning skills: ability to connect and integrate all factors affecting tree water status with main emphasis on genotype-environment interactions. Acquire updated information by reading scientific and technical publications. Ability to attend both scientific and industry-related seminars.</p>
ASSESSMENT METHODS	<p>An oral exam in which the examinees must answer at least two / three questions posed orally, on all topics covered in class, with reference to the recommended text books and available class material.</p> <p>Final assessment aims to evaluate whether the student has knowledge and understanding of the topics, has acquired interpretative skills and independence of judgment in real cases.</p> <p>Evaluation is presented in scores out of 30 with a minimum score of 18 for passing, according to the following table:</p> <ul style="list-style-type: none"> - sufficient/basic knowledge and ability to connect, apply and analyze covered topics (score 18-21) - fair/intermediate knowledge and ability to connect, apply and analyze covered topics (score 22-25) - good/high knowledge and ability to connect, apply and analyze covered topics (score 26-28) - excellent/advanced knowledge and ability to connect, apply and analyze covered topics (score 29-30L)
EDUCATIONAL OBJECTIVES	<p>The aim of the course is to provide knowledge on the responses of fruit trees to irrigation management and the genotype-environment interactions with main emphasis on the physiological mechanisms underlying these interactions.</p> <p>Acquiring this knowledge ultimately aims at the implementation of specific choices and strategies during the design and management of irrigation plans for obtaining environmentally and economically sustainable fruit productions.</p>
TEACHING METHODS	Lectures in class, exercises and field demonstrations in the campus plots of the SAF department.
SUGGESTED BIBLIOGRAPHY	<p>Materiale didattico fornito dal docente in forma di dispense e articoli da riviste scientifiche.</p> <p>Taiz, L. e E. Zeiger. 2001. Fisiologia vegetale. Piccin, Padova.</p> <p>Pallardy S. 2008. Physiology of Woody Plants. Elsevier</p> <p>Hopkins and Huner. 2009. Introduction to Plant Physiology. Wiley</p> <p>Lambers et al. 2008. Plant Physiological Ecology. Springer</p> <p>Reigosa Roger. 2001. Handbook of Plant Ecophysiology Techniques. Kluwer Academic Publishers</p> <p>Kirkham, M.B. 2005. Principles of Soil and Plant Water Relations. Elsevier Academic Press. USA.</p>

SYLLABUS

Hrs	Frontal teaching
6	Physiological and ecophysiological basis of water relations in the soil-plant-atmosphere continuum, with main emphasis on tree crops. Considerations on the water balance of orchards.
4	Environmental factors and stress. Drought, salinity, and oxidative stress. Effects on tree growth and production. Stress resistance: avoidance/tolerance and adaptation mechanisms
6	FAO cultural coefficients for tree crops: choosing and using them. Plant and soil indicators and monitoring to estimate fruit tree irrigation scheduling and volumes.
6	Moderate water deficit as a tool to manage fruit production and quality. Regulated deficit irrigation and partial rootzone drying. Examples on pome and stone fruits, grapes and olive.
Hrs	Practice
8	Demonstration of various methods and instruments to measure tree water status. Acquiring and interpreting physiological data from experimental plots of the SAAF department.