



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Agrarie, Alimentari e Forestali
ACADEMIC YEAR	2021/2022
BACHELOR'S DEGREE (BSC)	VITICULTURE AND OENOLOGY
INTEGRATED COURSE	VINEYARD MANAGEMENT - INTEGRATED COURSE
CODE	13750
MODULES	Yes
NUMBER OF MODULES	2
SCIENTIFIC SECTOR(S)	AGR/08, AGR/03
HEAD PROFESSOR(S)	PISCIOTTA ANTONINO Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	PAMPALONE VINCENZO Professore Associato Univ. di PALERMO PISCIOTTA ANTONINO Professore Associato Univ. di PALERMO
CREDITS	9
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	3
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	<p>PAMPALONE VINCENZO</p> <p>Tuesday 09:00 11:00 Studio docente, identificativo 13, Edificio 4, ingresso E- Dipartimento SAAF e Piattaforma Teams</p> <p>Wednesday 09:00 11:00 Studio docente, identificativo 13, Edificio 4, ingresso E- Dipartimento SAAF e Piattaforma Teams</p> <p>Friday 11:00 13:00 Sede del corso di Studi in Viticoltura ed Enologia e Piattaforma Teams.</p> <p>PISCIOTTA ANTONINO</p> <p>Monday 09:00 13:00 Sede del Corso di Laurea in Viticoltura ed Enologia</p> <p>Tuesday 09:00 13:00 Sede del Corso di Laurea in Viticoltura ed Enologia</p>

PREREQUISITES	The student must have basic knowledge to understand the content and the learning objectives of the teaching. In particular, in coherence with the propedeuticity, the knowledge of biology, general arboriculture and viticulture contained in the expected learning outcomes of the preparatory courses to this teaching. In addition, the basic knowledge of mathematics and physics and those gained in the previous school path, in accordance with the initial training anticipated by the Study Course, will be fundamental prerequisites.
LEARNING OUTCOMES	<p>Knowledge and ability to understand The Vineyard Management discipline contributes to providing the theoretical and applicative knowledge necessary for vineyard management in different areas. Fundamental knowledge of vineyard planting techniques and basic knowledge of canopy management in viticulture in hot-arid environments. Acquisition of basic knowledge on the main vineyard management techniques in terms of fertilization and soil management, on the rationality of cultivation operations according to the oenological objectives of the function. In the context of irrigation management, the most up-to-date tools will be acquired for the drafting of general projects, sizing, and management of micro-irrigation systems. Ability to understand and use the specific language of the discipline.</p> <p>Ability to apply knowledge and understanding Ability to recognize, and organize autonomously, the basic information for the formulation of the choices of the fundamental techniques for planting vineyards (analysis of environmental suitability, varietal choices, and planting and crop management systems). Ability to recognize the various viticultural problems and their implications on the management of the plants. The gained knowledge will enable students to evaluate and estimate the main design parameters and perform the processing necessary for the preliminary design of a micro-irrigation system for a vineyard.</p> <p>Judgment autonomy Being able to formulate general criteria for vineyard management according to pre-established production and oenological objectives. Being able to evaluate the implications and results of a micro-irrigation project. Operating design choices. Being able to recognize the technical reasons for the failure of an irrigation system and take action to correct them.</p> <p>Communication skills Ability and competence in the dissemination of knowledge acquired in order to run a vine plant with reference to all the choices of techniques suitable for obtaining excellent and economically sustainable production results. Ability to show results and to motivate crop choices according to production and quality objectives. Being able to support the importance and highlight the repercussions both from a production and environmental point of view. Ability to expose the contents of a technical report regarding irrigation systems even to an unskilled audience, being able to support the value of the design choices.</p> <p>Learning skills Ability to find sources of information on cultivation systems in viticulture. Knowledge of sources of information on plant materials and propagation material. Retrieval of information and analysis on fundamental environmental variables and use of information and assistance systems for viticulture. Upgrade skills by consulting scientific publications dealing with irrigation systems. Ability to attend, using the knowledge acquired in the course, second-level master courses, advanced courses, and specialized seminars in the irrigation sector. At the end of the course, the student must be able to have a critical comparison between the physiological principles learned and applications in the field of crop choices in viticulture, have the ability to acquire knowledge with the ability to transfer it to the applied systems of the field, at specialized companies in the sector.</p>
ASSESSMENT METHODS	<p>The way in which the actual acquisition by students of expected learning outcomes is verified is an oral test The oral test consists of a colloquium aimed at ensuring the possession of the competences and the disciplinary knowledge provided by the course, the ability to contextualize and expose; The evaluation is expressed in thirtieths. The inputs (both open and semi-structured and specifically designed to test the expected learning outcomes) will tend to verify (a) the acquired knowledge; B) processing capabilities; (C) possession of adequate exhibition capacity. A) As far as knowledge verification is concerned, the ability to establish connections between the contents (theories, models, tools, etc.) of the course will be required. (B) As far as the processing capacity is concerned, at least one of the following three objectives shall be indicated: B1) provide independent judgments about disciplinary content; B2) understand the applications or their implications in the discipline; B3) place disciplinary content within the professional, technological or sociocultural context of reference. The maximum score is obtained if verification ensures full possession of the following three aspects: a judgmental ability that can represent emerging and /</p>

	<p>or unexplored aspects of discipline; A strong ability to represent the impact of the contents of the course within the sector / discipline in the</p> <p>What content they subscribe; Finally, mastering the ability to represent innovative ideas and / or solutions within the professional, technological context of reference.</p> <p>As far as the display capacity is concerned, there is a minimum rating (18/30) if the examination shows a language property that is appropriate to the reference context but this is not sufficiently articulated, while the maximum rating (30/30) can be achieved by those who demonstrate full mastery of the sectoral language as well.</p>
TEACHING METHODS	Teaching includes 60 hours of activities organized in frontal classroom lessons and practical exercises in experimental fields. For frontal lessons the teacher uses slides and presentations that are available for students. Technical visits are also carried out at wine-growing companies and experimental fields

MODULE WINE-GROWING TECHNIQUE

Prof. ANTONINO PISCIOTTA

SUGGESTED BIBLIOGRAPHY

AAVV, Manuale di Viticoltura - (a cura di Matteo Marengi), Edagricole, Bologna, 2005.
 Manuale di Viticoltura (Pallotti A., Poni S., Silvestroni O.), Edagricole, Bologna, 2018.
 Avversita' non parassitarie della vite e cambiamento climatico (Pallotti A., Poni S., Silvestroni O.), Edagricole, Bologna, 2019.
 M. Fregoni, Viticoltura di Qualita, Tecniche Nuove, III Edizione – 2013.
 AAVV, La vite ed il vino, Coltura e cultura- (Bayer CropScience) - 2007.
 AAVV Progressi in Viticoltura, (a cura di Maurizio Boselli), Edises, Napoli, 2016

AMBIT	50125-Discipline della produzione vegetale
INDIVIDUAL STUDY (Hrs)	90
COURSE ACTIVITY (Hrs)	60

EDUCATIONAL OBJECTIVES OF THE MODULE

The Viticulture Technique teaching has the general purpose of contributing, together with the teachings of General Arboriculture and Viticulture, to provide the theoretical and application knowledge required for the management of "vineyard systems" in relation to the different productive objectives.

Many topics as interactions among cultivar, environment, and management will be discussed; Vineyards management of winter and green pruning, source-sink ratios, vegetative-reproductive ratio in relation to varietal needs and production, as well as irrigation management, fertilization management and soil in vineyard systems.

The acquired training will enable them to operate within the skills provided for the professional in the field of consultancy in wine-growing companies, with particular reference to the variety choice, the vineyard plantation and its management.

Teaching is divided into frontal and practical lessons. The latter is carried out at the experimental fields managed by the Department of Agricultural, Food and Forestry Sciences. Finally, supplementary lessons are provided on specific topics.

SYLLABUS

Hrs	Frontal teaching
10	Irrigation. General aspects: assessment of availability and philosophy of using water in viticulture. Usable techniques, limitations, and necessities. timing of irrigation and effects on wine production and quality
10	Soil management techniques: tillage and cover crop. Objectives and effects on the vegetative-reproductive balance of the vine and the quality of the wine.
10	Vineyard Fertilization: nutrients requirement. Assessments of environmental, viticultural and oenological variables for the implementation of fertilization. Types of fertilization, organic and mineral. Timing of fertilization and effects on vine and grape quality.
12	Canopy management techniques during summer. Decisional criteria, timing, and intensity. Effects of canopy management techniques on yield and grape quality. Choice of the optimal harvest time in relation to the oenological target and cultivar. Methods to characterize the optimal harvest time. Harvest methods.
Hrs	Practice
18	Technical visits and practice in vineyards.

MODULE IRRIGATION PLANTS

Prof. VINCENZO PAMPALONE

SUGGESTED BIBLIOGRAPHY

Fondamenti di idraulica – tratti da Appunti sinottici delle lezioni di “Irrigazione e drenaggio” prof. D. Pumo
 “Progettazione e gestione degli impianti di irrigazione”, A.Capra, B.Scicolone, EDAGRICOLE
 Appunti e diapositive delle lezioni del docente

AMBIT	10689-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	45
COURSE ACTIVITY (Hrs)	30

EDUCATIONAL OBJECTIVES OF THE MODULE

The course aims to provide students with knowledge and professional skills on the optimal design of micro-irrigation systems. After analyzing the basics of hydraulics related to pressure pipes, the various components of drip irrigation systems (emitters, pipes, fittings, automation systems, pumping system, etc.) and their technical characteristics are analyzed. Finally, the design and efficiency evaluation criteria used in practice are presented

SYLLABUS

Hrs	Frontal teaching
2	Objectives of the course. Physical properties of liquids. Hydrostatics: water pressure distribution in a liquid. Local equation of hydrostatics.
2	Hydrodynamics. Types of flow motion. Bernoulli's theorem.
2	Application of Bernoulli's theorem. Total head line. Piezometric head line.
2	Localized and friction head losses. Design and verifying of a pipe. Pipe with water distribution along the path.
2	Prevalence-power-efficiency of a pump. Characteristic curve of a pump. Design and verifying of a pumping system. Types of pumps.
1	Soil water content. Hydrological constants. Objectives of irrigation. Water quality parameters.
3	Microirrigation systems: advantages and disadvantages, plant schemes and materials. Emitters' hydraulic characteristics. Stage-discharge relationship of the emitter.
3	Layout and design criteria for irrigation schemes: lateral, manifold, secondary and main pipes. Pressure distribution in the irrigation network. Influence of terrain slope on pressures. Emitters' quality, clogging. Uniformity of water application.
3	Design of a microirrigation system: determination of design parameters, division into sectors, choice and plan scheme of laterals and network, design of laterals, manifolds and main pipe in case of water supply by pumping system or storage tank.
Hrs	Practice
10	Calculation of hydrostatic pressure and pressure distribution. Pipe design. Verifying of a pipe. Drawing of the piezometric head line for a lateral.