# UNIVERSITÀ DEGLI STUDI DI PALERMO

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| **DEPARTMENT** | Scienze Agrarie, Alimentari e Forestali |
| **ACADEMIC YEAR** | 2018/2019 |
| **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<br>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** | **PAMPALONE VINCENZO**<br>Tuesday 09:00 11:00 Studio docente, identificativo 13, Edificio 4, ingresso E-Dipartimento SAAF e Piattaforma Teams<br>Wednesday 09:00 11:00 Studio docente, identificativo 13, Edificio 4, ingresso E-Dipartimento SAAF e Piattaforma Teams<br>Friday 11:00 13:00 Sede del corso di Studi in Viticoltura ed Enologia e Piattaforma Teams.<br>**PISCIOTTA ANTONINO**<br>Monday 09:00 13:00 Sede del Corso di Laurea in Viticoltura ed Enologia<br>Tuesday 09:00 13:00 Sede del Corso di Laurea in Viticoltura ed Enologia |

**DOCENTE:** Prof. ANTONINO PISCIOTTA

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| **PREREQUISITES** | |
| **LEARNING OUTCOMES** | |
| **ASSESSMENT METHODS** | |
| **TEACHING METHODS** | |

## MODULE
## WINE-GROWING TECHNIQUE

*Prof. ANTONINO PISCIOTTA*

**SUGGESTED BIBLIOGRAPHY**

AAVV, Manuale di Viticoltura - (a cura di Matteo Marenghi), Edagricole, Bologna, 2005.
M. Fregoni, Viticoltura di Qualita, Techiche 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

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| **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 are 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 |
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| 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 oenological target and cultivar. Methods to characterize the optimal harvest time. Harvest methods. |

| Hrs | Practice |
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| 18 | Technical visits and practice in vineyards and nurseries |

**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

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| **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 various components of drop irrigation systems (dispensers, pipes, fittings, automation systems, pumping plants, filtration plants, etc.) and their technical characteristics, the design and evaluation criteria efficiency followed in practice. In the final part of the course, students are guided in the dimensioning of plant-type and in the drafting of their design work.

## SYLLABUS

| Hrs | Frontal teaching |
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| 3 | Basics of hydraulics<br>Hydrostatic and Hydrodynamic Hints; Tracking piezometric and total loads lines; Simple pipe: calculation or verification procedures of a pipe; Pipe with the distribution along the path. |
| 1 | Pump installations<br>Prevalence, power, maximum flow, characteristic curves of a pump; Types of pumps; Description of a lifting system; Dimensioning of a lifting system; Choice of engine-pump system. |
| 1 | Soil hydrology<br>Physical properties of the soil. Water in the soil: potential of water in the soil; Hydrological parameters of the soil, characteristic curves; Water movement in the soil; Measurement of parameters and measurement equipment. Estimation in field and analytical of wet bulb. |
| 1 | Water quality for irrigation<br>Water Quality Parameters: Salinity, Sodium; Criteria for assessing suitability. |
| 3 | Localized irrigation: general<br>Local irrigation systems, advantages and disadvantages; Plant schemes and materials.<br>Dispensing devices: laminar flow, turbulent, vortex, self compensating, hoses.<br>Law of dispensation, determination of the x flow exponent; Temperature influence. |
| 3 | Micro-irrigation system: the net and dispensers<br>Distribution network tracking criteria: side, head, secondary and main pipe. Distribution of pressures along the net; Soil slope influence on pressures; Detergent quality, occlusion; Uniformity of supply. |
| 2 | Micro-irrigation system: accessory works<br>Accessory and completion works: filtration systems; Chemical treatments; Industry equipment; fertigation; automation; Material degradation. |
| 6 | Micro-irrigation system: the project<br>Project of a plant: determination of project parameters; Division into sectors; Choice and arrangement of the wings and the net; Proportionality of: manifold and lateral; Main pipe in case of supply from lifting plant or storage tank; Plant automation systems; Provision of equipment in the network; Plant maintenance; Installation and operation costs. |

| Hrs | Practice |
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| 10 | Calculation and verification of irrigation network.<br>• Sizing of storage tank and pump equipment.<br>• Piezometric tracking.<br>• Irrigation system project for vineyards.<br>• Use basic software for an irrigation net sizing<br>• Visit to an irrigation facility or experimental plant. |