

# VITICULTURE (I)

## (III year of studies, V semester)

**Credits (ECTS): 5**

**Course category: specialized discipline**

**Holder of course activities and practical works:**

**Professor Liviu Mihai IRIMIA, PhD**

### **The objectives of the discipline**

Knowledge of the anatomical-morphological peculiarities of the grapevine, the peculiarity of the biological and physiological processes of this species, its requirements in relation to ecological factors; understanding the mechanisms on which the exploitation of the biological vegetative and production potential of grapevine varieties depends; knowledge of the spread of the vine around the globe, of the wine-growing regions and vineyards in Romania; understanding the mechanisms that condition the viticulture potential of geographical areas and its spatial distribution at fine scale and regional scale; knowledge and control of the mechanisms that determine the size and quality of grape yields, life duration, vigor and production potential of grapevine.

### **Course and practical works content**

<b>Course (chapters)</b>
<b>1. Introduction to viticulture</b>
1.1. The importance of viticulture
1.2. The history of viticulture
1.3. Grapevine culture around the globe
1.4. Grapevine culture in Romania
<b>2. The origins, evolution and systematics of the Vitaceae</b>
2.1. The origin and evolution of the Vitaceae
2.2. Systematics of the Vitaceae
2.3. Classification of cultivated vines
<b>3. Biology of the grapevine</b>
3.1. The ontogenetic biological cycle of the vine
3.2. The annual biological cycle of the vine
<b>4. The ecology of the grapevine</b>
4.1. Climatic factors
4.2. Bioclimatic indices
4.3. The soil
4.4. The relief
4.5. Secondary ecological factors
<b>5. Physiology of the vine</b>
5.1. Water absorption
5.2. Mineral nutrition
5.3. Transpiration
5.4. Photosynthesis
5.5. Respiration
5.6. Translocation, metabolism and accumulation of organic substances
5.7. The role of phytohormones in the development of physiological processes in the grapevine

<b>Practical works</b>
1. Grapevine morphology.

2. Shoot and cane morphology and anatomy.
3. Morphology and anatomy of the root system.
4. Inflorescence and flower morphology in grapevine.
5. Analysis of the architecture of the root system.
6. Analysis of the microclimate of the vine canopy.
7. Grapevine productivity indices.
8. Evaluation of grapevine yield.
9. Calculation of leaf area and leaf index.
10. Analysis of the phenological evolution in the vine according to the Baggioolini, Echorn-Lorens, BBCH scales.
11. Study of wine-growing areas in Romania: regions, vineyards and wine-growing centers.
12. The wine regions of the world.
13. Evaluation of the viticultural potential of geographical areas by using Geographical Information Systems (GIS).

### **Bibliography**

- Dejeu L.C., 2010. Viticultură. Ed. Ceres, București.
- Galet P., 1988 – Precis de Viticulture. Ed. Tec et Doc.
- Hidalgo L., 2003. Tratado de viticultura general. 3ª edición. Ediciones Mundi-Prensa, Madrid
- Huglin P., Schneider Ch., 1998. Biologie et fiziologie de la vigne. 2e édition. Ed. Lavoisier TEC&DOC.
- Irimia L.M., Mustea M., 2021. Cap. 3 Viticultura, în Manual de practică – Specializarea Horticultură, vol. 2, Ed. “Ion Ionescu de la Brad” Iasi,
- Irimia L.M., Patriche C.V., 2019. Potențialul viticol al podgoriilor și evoluția acestuia în contextul schimbării climatice. Ed. “Ion Ionescu de la Brad” Iasi
- Irimia L., 2012. Biologia, ecologia și fiziologia viței de vie. Ed. Ion Ionescu de la Brad, Iași, 284 p.
- Irimia L., Țârdea C., 2007. Viticultura. Lucrări practice. Ed. Ion Ionescu de la Brad, Iași.
- Milică C., Bărbat I., Dorobanțu N., Nedelcu Polixenia, Baia V., 1977. Fiziologie vegetală. Ed. Didactică și Pedagogică, București.
- Mullins M., Bouquet A., Williams L.E., 1992. Biology of the grapevine. Biology of horticultural crops. Cambridge University Press.
- Țârdea C., Dejeu L., 1994. Viticultura. Ed. Didactică și Pedagogică, București.

### **Student assessment**

<b>Assessment form</b>	<b>Assessment method</b>	<b>Percentage of the final grade</b>
Examination	Oral assessment	75%
Appreciation of the activity during the semester	Written assessments during the semester and practice tests.	25%

### **Contact**

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# VITICULTURE II

(Specialization Horticulture 3<sup>rd</sup> / Year of study, 2<sup>nd</sup> Semester)

**Credits (ECTS): 4**

**Course category:** Domain-specific discipline /(mandatory)

**Course holder:** Assoc. Prof. Mihai MUSTEA PhD

**Objectives of the discipline:**

Knowledge of the technology of establishment and maintenance of fruitful vineyards; production of viticultural planting material

**Contents (syllabus)**

Course (chapters/subchapters)
<b>1. Production of viticultural planting material</b> Biology of grapevine propagation. The vineyard nursery Production of rootstock cuttings Production of graft cords Production technology of grafted vines Production of certified planting material
<b>2. The establishment of fruitful vineyard plantations.</b> Types of vineyard plantations The choice of land Organization of the land intended for planting vines Land preparation for planting The choice of fruiting vine varieties and rootstocks Vine culture systems Establishing the planting distances of the driving forms and cutting types Planting vines
<b>3. Maintenance of young plantations of fruitful vines</b> Maintenance work in the first year after planting Maintenance work in the second year after planting Maintenance work in the third year after planting Vine formation cutting
<b>4. Maintenance of fruitful vine plantations</b> Cutting the vine Driving the wooden elements resulting from cutting, on the means of support Soil maintenance systems in fruit vine plantations Herbicide of wine plantations Green works and operations Fertilization of vineyards Irrigation of vineyards Filling in the blanks Combating diseases and pests in vineyards Harvesting grapes
Practical activity
1. Control of bud viability

2. Preparation of grafting material. Grafting the vine
3. Layering and forcing the grafted cuttings
4. Planting the grafted and forced cuttings in the school of vines
5. Cutting the rootstock vines
6. Planting vines
7. Training cuts on the vine
8. Fruiting cuttings of the vine
9. Management of the vine on the means of support
10. The agrotechnical works, herbicides, fertilization and irrigation applied in vineyards
11. The works and operations in the green of the fruitful vines. Determination of the fertility of the vine.
12. Works and operations in the green of rootstock vines

### Bibliography

1. Dejeu L., 2010 Viticulture, Ceres Publishing House, Bucharest.
  2. Dobrei A., Mălăescu Mihaela, Ghiță Alina, 2011 – Viticulture, biological and technological bases. Solness Publishing House, Timoșoara
  3. Dobrei A., Rotaru Liliana, Dobrei Alina, 2017 – Viticulture, Ampelography, Oenology. Solness Publishing House, Timișoara.
  4. Mustea M., 2004 – Viticulture, biological bases, establishment and maintenance of young plantations of fruitful vines. "Ion Ionescu de la Brad" publishing house, Iasi.
  5. Mustea M., 2022 – Viticulture. Vine culture technology. "Ion Ionescu de la Brad" publishing house, Iasi.
  6. Mustea M., Alexandru L. C., 2024 - Production of viticultural planting material. "Ion Ionescu de la Brad" publishing house, Iasi.
  7. Pop Nastasia, 2010 – General viticulture, Eikon Publishing House, Cluj-Napoca.
  8. Popescu V., Chira L., Dejeu L., 2001 – Production of planting material for vegetables, trees and vines.
  9. Suditu P. et al., 2002 – Mechanization of works in viticulture. Pim publishing house.
  10. Ungureanu S., Cebanu V., 2019 – Technology of production of viticultural planting material. AȘM printing house. Chisinau.
- xxx - Horticulture magazine.  
xxx - Scientific works of U.A.M.V. Iasi, Horticulture series.

### Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Final exam	Oral examination	60
Evaluation of the activity during the semester	Written and oral assessments during the semester	40

### Contact

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