# .- Applied Enology

## Prof. Milena Lambri

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

Students will face basic knowledge related to enology in order to understand the principles, the technical and practical issues in the winery. The course will include new perspectives bound to climate change and to a more efficient use of adjuvant and additives.

At the end of the course the student is expected to own fundamental knowledge about winemaking and wine composition as well as to acquire the most suitable techniques needed to get wine stability and to improve wine shelf-life.

In front of a given winemaking issue, the student is expected to provide autonomous analysis and thinking inspired to the acquired knowledge rather than based on popular “rule of thumbs” applications.

Finally, the student is expected to be able to successfully deliver, in both oral and written forms, a correct diagnose and discussion of the different winemaking practice using proper technical language.

***COURSE CONTENT AND STRUCTURE***

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|  | **ECTS credits** |
| **Wine chemistry and microbiology**  |  |
| Grape and wine composition; factors affecting wine perceptions. Colloidal and tartrate stability of wines. | 1.0 |
| **Managing wine making factors** |  |
| Adjuvants and additives in enology: main roles; regulation; allergenic issues; optimization of their use for more sustainable productions.  | 1.0 |
| Key points of white and red winemaking, and of sparkling wine production.Impact of different techniques on wine composition. | 1.0 |
| **Plants and design optimization in winemaking**  |  |
| Design of a wine cellar; newest installations for grape crushing, pressing, fermentation, filtration, and heat management. | 1.0 |
| **Wine bottling and closures** |  |
| Bottling line, standard requirements for each bottle type. Traditional corks, synthetic closures, screw caps: production processes; regulation; behavior toward white wine browning and red wine evolution; shelf-life studies. | 1.0 |
| **Practical experience** |  |
| Chemical lab: analytical techniques of grape, must and wine. Tests to evaluate colloidal and tartrate stability of wines. Sensory analysis of wines obtained at varying processing conditions. | 1.0 |

***READING LIST***

P. Miguel Costa, S. Catarino, J.M. Escalona, P. Comuzzo*, Improving Sustainable Viticulture and Winemaking Practices, Elsevier-Academic Press, 2022.*

P. Ribereau-Gayon, D. Dubourdieu, B. Doneche, A. Lonvaud*, Handbook of Enology, 2nd Edition, Vol.1 & 2*, *Wiley, 2005*.

R.S. Jackson, *Wine Tasting a professional handbook, 2nd Edition, Academic Press, Elsevier, 2009.*

***TEACHING METHOD***

The teaching method will include the following activities:

1) Indoor class where main course topics will be covered along with several applied examples. Teaching methods will use high interactivity between teacher and students to stimulate discussion.

2) Indoor exercises and outdoor practical activities aimed at comprehension of equipment functioning and on how to perform some operations in winemaking.

3) Field visits within the national territory for a better appreciation of the wine value chain. Topics covered during the visit are intergap part of the cluster program.

***ASSESSMENT METHOD AND CRITERIA***

- For attending students there will be, at the end of the course, a written test to verify the level of learning reached after participation in all lessons. The test will last two hours and will be based on thirty choice questions. The overcoming of the final test, within one year, will exempt the student from preparing the corresponding part of the program for the final examination. This will be oral and will result in the assignment of a score that, out of thirty, will be averaged with the marks obtained in the written test. The student who does not intend to make use of the marks obtained in the written test and the corresponding partial exemption may, however, take the oral examination in the manner and contents that are reported below for non-attending students.

- Non-attending students will take the oral examination on the entire program as like as reported into the guidance of the degree course according to the bibliography therein.

- Through the written test the students will have to demonstrate knowledge of information, distinctions and key concepts of the discipline treated; through the oral interview we will insist more on the readings in the program.

- In both, written and oral exam, the relevance of the answers, the appropriate use of specific terminology, the argumentative and coherent structuring of the discourse, the ability to identify conceptual links will contribute to the evaluation.

***NOTES AND PREREQUISITES***

General skills about organic chemistry and food microbiology are useful to the student for the purpose of a profitable frequency of the course and for passing the relative exam

Prof. Lambri receives students after class in her office at the Department for Sustainable Food Processes (DiSTAS) and/or by e-mail appointment.