

Course Unit	Applied Sensory Analysis	Field of study	Food Industries
Bachelor in	Oenology	School	School of Agriculture
Academic Year	2023/2024	Year of study	3
Type	Semestral	Semester	1
Level	1-3	ECTS credits	6.0
Code	9998-705-3101-00-23		
Workload (hours)	162	Contact hours	T 30 TP - PL 30 TC - S - E - OT 4 O -

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Ana Claudia Ferreira Alves, António Castro Ribeiro

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Know and identify the different compounds of grapes and wine and the methodologies of sensory analysis
2. Know and identify the wine aromatic compounds, their origin, aromatic characteristics and regulation factors
3. Know and identify, through sensorial analysis, the main wine faults, the origin and how to prevent and remove
4. Identify and characterize, through sensory analysis, wines from different winegrowing regions
5. Perform statistical analysis of data from sensory analysis tasting sheets
6. Characterize, through sensory analysis, sparkling wines, fortified wines and wine spirits

Prerequisites

Before the course unit the learner is expected to be able to:
Know the basics of sensory analysis

Course contents

Sensory Analysis of Grapes: justification and objectives. Sensory Analysis of Wine: Methodology. Aromatic constituents of wine: origin, aromatic characteristics and regulation factors. Wine Sensory Faults: origin, prevention, treatment and sensory identification. Characterization of different Portuguese wine regions: Climate, soil, grape varieties, typology of wines; Sensory analysis of wines from different regions. Characterization of sparkling and liqueur wines and wine spirits.

Course contents (extended version)

1. Grape Sensory Analysis – Justification and Objectives
 - Aromatic compounds of grapes
 - Evaluation of grape berry development, balance in acids, aromatic potential, polyphenols
 - Oenological quality of the grapes and their level of ripeness
 - Differentiation between technological and phenolic maturation
 - Standard methodology of Grapes Sensory Analysis
2. Wine Sensory Analysis – Methodology
 - Discriminative tasting
 - Descriptive tasting
 - Hedonic tasting
 - Tasting sheets
 - Sensory analysis report
 - Data analysis and statistics applied to sensory analysis
3. Wine Aromatic compounds - Origin, aromatic characteristics and regulation factors
 - Alcohols
 - Acids
 - Esters
 - Terpenes and oxygenated derivatives
 - Volatile phenols
 - Carbonyl compounds
 - Sulfur compounds
 - Sensorial identification of different aromatic compounds
 - Sensory analysis of different wines and identification of different compounds
4. Sensory Defects – Origin, prevention, treatment and sensorial identification
 - Defects from the grapes: herbaceous aromas related to maturation; microbiological contamination
 - Pre-fermentative or fermentative origin: sulfur compounds and related to microbiological activity
 - Originating during storage: brettanomyces; influence of the container; oxidation; light-struck taste
 - Originating during aging: ATA; TDN; degradation of sorbic acid; mold and mildew taste; paper taste
 - Sensory analysis of different wines with defects and the identification of related off-odours
5. Characterization of different Portuguese wine regions
 - Climate, soil, grape varieties, types of wine
 - Sensorial analysis of wines from different regions
6. Characterization of sparkling and liqueur wines and wine spirits
 - Different styles and winemaking technologies, main producing regions
 - Sensory analysis of different types of wines and wine spirits

Recommended reading

1. Clarke, R. J. ; Bakker, J. 2004. Wine Flavour Chemistry. Blackwell Publishing. Oxford, UK.
2. Grainger, K. 2021. Wine Faults and Flaws: A Practical Guide. John Wiley & Sons. London, UK.
3. Grainger, K. 2009. Wine quality: tasting and selection. John Wiley & Sons. London, UK.
4. Jackson, R. S. 2009. Wine tasting-A Professional Handbook. 2nd Edition. Academic Press. London, UK.
5. Peynaud, E. , Blouin, J. 2005. O gosto do vinho. Litexa Editora, Lisboa, Portugal.

Teaching and learning methods

Lectures (Theoretical and Laboratory Practices in the tasting room). Tasting of wines with faults and identification of the chemical compounds involved. Tasting of wines from different wine-growing regions, analysis and discussion of the results of sensory analysis. Tasting and characterization of sparkling and liqueur wines and wine spirits

Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final)
 - Intermediate Written Test - 50% (Theoretical 70% Practical 30% (Sensory characterization of aromatic compounds and wines))
 - Final Written Exam - 50% (Theoretical 70% Practical 30% (Sensory characterization of aromatic compounds and wines))
2. Alternative 2 - (Regular, Student Worker) (Supplementary, Special)
 - Final Written Exam - 100% (Theoretical 70% Practical 30% (Sensory characterization of aromatic compounds and wines))

Language of instruction

Portuguese

Electronic validation

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01-02-2024	03-02-2024	03-02-2024	03-02-2024