Course guide
390435 - ASENS - Sensory Analysis

Last modified: 23/01/2026

Unit in charge: Barcelona School of Agri-Food and Biosystems Engineering
Teaching unit: 745 - DEAB - Department of Agri-Food Engineering and Biotechnology.

Degree: BACHELOR'S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Optional subject).

Academic year: 2025 **ECTS Credits:** 3.0 **Languages:** Catalan, Spanish, English

LECTURER

Coordinating lecturer: Kallas Calot, Zein

Others:

PRIOR SKILLS

To successfully complete the course, students are advised to have:
Basic knowledge of statistics, including hypothesis testing, ANOVA, and the use of statistical software (SPSS or similar).
Foundations of food science and technology, to understand the properties and characteristics of the products analyzed.
Skills in research and data management, particularly in questionnaire design and interpretation, and in the use of online tools for data collection.
Basic digital competencies, for working with virtual platforms and statistical software.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE-AL-20.7. Food engineering and technology: Food analysis.
CE-AL-30.3. Basic knowledge of food biochemistry and microbiology.
CE-BC-19. Valuation of agricultural firms and commercialization.

TEACHING METHODOLOGY

Theoretical classes (large group), where the teachers through an exhibition will alternate the master classes with the presentation of cases and the resolution of exercises, trying to motivate and involve the students so that they participate in their learning.
Support material using ATENEA is used.
Practical classes (small group), because the student puts into practice the methodologies of both sensory analysis and market studies that will have been explained to the classes as well as performing statistical analysis and interpretation of the data obtained.
Autonomous learning that includes oriented reading on the one hand and, on the other hand, the design, realization, analysis and interpretation of the data obtained from a case related to the contents of the subject. Using material provided by the teachers to class or be through the virtual campus ATENEA.

LEARNING OBJECTIVES OF THE SUBJECT

Upon completion of the subject Sensory Analysis, the student must be able to:
- To know the bases and techniques of sensory analysis
- Know the methods to study consumer behavior and preferences
- Design objective sensory analysis tests
- Design questionnaires to know the behavior and preferences of the consumer
- Design hedonic tests of preference using sensory analysis techniques
- Apply the statistical analysis correctly to know the result of the tests
- Analyze the results obtained and draw conclusions to make the right decisions
- Apply sensory analysis to evaluate the sensory quality of different products

STUDY LOAD

Type	Hours	Percentage
Laboratory classes	10,0	8.33
Self study	90,0	75.00
Practical classes	20,0	16.67

Total learning time: 120 h

CONTENTS

SENSORY ANALISYSIS BASIS

Description:
1.1 Psychological and physiological basis of sensorial perceptions.
1.2 Scientific basis of sensory analysis. Types of tests. Experimental design. The local. Test methodology: Worksheet and design of the score sheet, preparation of samples, development of the test, data collection.
1.3 Discrimination test and ranking test
1.4 The panel of tasters: recruitment, training, validation and maintenance
1.5 Hedonic tests

Specific objectives:
Understand the psychological and physiological foundations of sensory perceptions, identifying how they influence the evaluation of food and beverages.
Apply the scientific methodology of sensory analysis, designing tests, tasting sheets, and experimental protocols, including sample preparation and data collection.
Assess sensory quality through discriminative, ranking, and hedonic tests, managing the tasting panel (recruitment, training, and validation) to ensure reliable results.

Related activities:
Activity 1: Theoretical class.
Activity 2: Practical classes in the laboratory (tasting room).
Activity 3: Practical problem solving classes.
Activity 4: Design, realization and resolution of a practical case.

Full-or-part-time: 32h 30m
Practical classes: 10h
Laboratory classes: 5h
Self study : 17h 30m

ANALYSIS OF CONSUMER PREFERENCES AND BEHAVIOR

Description:
2.1 What is Consumer Behavior? Why Study Consumer Behavior
2.2 Consumer Decision-Making Process. The Model: Need Recognition. Information Search. Evaluation of Alternatives. Types of Decision-Making Processes. Variables Affecting the Decision-Making Process.
2.3 Consumer Research. Methods for Analyzing Consumer Behavior. Questionnaire Design for Consumer Research: Concept and Types of Scales.
2.4 Development of Online Tools for Designing Forms and Questionnaires.

Specific objectives:
Understand the basic concepts of consumer behavior and its importance in purchase decision-making.
Analyze the consumer decision-making process, identifying its stages, types of processes, and influencing variables.
Apply consumer research techniques, including questionnaire design, use of scales, and development of online tools for data collection.

Related activities:
Activity 1: Theoretical Class.
Activity 4: Design, Implementation, and Resolution of a Practical Case.
Activity 5: Written Exam.

Full-or-part-time: 17h 30m
Practical classes: 5h
Self study : 12h 30m

ANÀLISI ESTADÍSTIC DE LES DADES

Description:
3.1 Introduction to Statistics for Sensory Analysis. Hypothesis Testing. Binomial Test. Types of Tests and Statistical Analysis Methods. Statistical Analysis Software: R and SPSS.
3.2 Analysis of Variance (ANOVA) for Sensory Analysis. Multiple Comparison Test of Means.

Specific objectives:
Apply basic statistical concepts to sensory analysis, including hypothesis testing, binomial tests, and analysis methods.
Use statistical analysis software (SPSS or another data analysis software) to perform ANOVA and multiple comparison tests of means.

Related activities:
Activity 1: Theoretical Class.
Activity 2: Practical Classes in the Laboratory (Tasting Room).
Activity 3: Practical Problem-Solving Classes (Computer Lab).
Activity 4: Design, Implementation, and Resolution of a Practical Case.

Full-or-part-time: 25h
Practical classes: 5h
Laboratory classes: 5h
Self study : 15h

GRADING SYSTEM

The final grade of the course (Nfinal) will be calculated using the following formula:
Nfinal = 0,20 × N1 + 0,20 × N2 + 0,40 × N3 + 0,20 × N4
N1: Class activities
N2: Practice reports
N3: Theoretical exam
N4: Practical case study

EXAMINATION RULES.

Attendance and carrying out the proposed activities is mandatory.

BIBLIOGRAPHY

Basic:
- Lea, P.; Naes, T.; Rodbotten, M. Analysis of variance for sensory data. Chicheste: John Wiley & Sons, 1997. ISBN 0471967505.
- Meilgaard, M.; Civille, G.V.; Carr, B.T. Sensory evaluation techniques. 4th ed. Boca Raton, FL: Taylor & Francis, 2007. ISBN 9780849338397.
- Blackwell, Roger D.; Miniard, Paul W.; Engel, James F. Consumer behavior. 10th ed. student ed. Mason: Thomson South-Western, 2006. ISBN 0324271972.
- Grande Esteban, Ildefonso; Abascal, Elena. Fundamentos y técnicas de investigación comercial. 7ª ed. rev. y actualizada. Madrid, 2003. ISBN 8473563654.
- Morgado Bernal, Ignasi; Camí, Jordi. Cómo percibimos el mundo : una exploración de la mente y los sentidos. Barcelona: Ariel, 2012. ISBN 9788434400269.
- Lawless, Harry T.; Heymann, Hidelgarde. Sensory evaluation of food : principles and practices. New York [etc.]: Kluwer/Plenum, 1999. ISBN 083421752X.
- Ibáñez Moya, Francisco C.; Barcina Angulo, Yolanda. Análisis sensorial de alimentos : métodos y aplicaciones. Barcelona: Springer, 2001. ISBN 840700801X.
- Dubois, Bernard; Rovira Celma, Álex. Comportamiento del consumidor : comprendiendo al consumidor. 2ª ed. Madrid [etc.]: Prentice Hall, 1998. ISBN 8483220105.
- Blackwell, Roger D.; Miniard, Paul W.; Engel, James F. Comportamiento del consumidor. 9ª ed. México [etc.]: Thomson, 2002. ISBN 9706861874.
- O'Mahony, Michael. Sensory evaluation of food : statistical methods and procedures. New York: Marcel Dekker Inc, cop. 1986. ISBN 0824773373.

RESOURCES

Other resources:
Assess the achievement of the course objectives
SPSS software