

Course guide

390226 - PV - Plant Production

Last modified: 22/01/2025

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). (Compulsory subject).
Academic year: 2024 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: Gil Gorchs Altarriba
Others: Nuria Carazo Gómez, Ana Gras Moreu, Xavier Sorribas Royo, Associat

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
 CE-BC-10.1. Fundamentals of vegetal production.
 CE-BC-10.2. Systems of production, protection and exploitation of vegetables

Transversal:
 04 COE N2. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.

TEACHING METHODOLOGY

In the classes of theoretical explanation (large grup) concepts to know, to understand and to use will be presented to reach the learning objectives of the subject. Applied examples and questions are raised by teachers and students to capture transcendence and facilitate discussion within the group.

In the practical sessions, in Small group, the student leads the activity raised. The basic capacity that is varied varies with the session, ranging from the ability to observe, solve problems, locate data or information, prepare and present reports with the results obtained, propose actions, individually or in a group.

LEARNING OBJECTIVES OF THE SUBJECT

The main objective of Crop Production is that students achieve a comprehensive view of the factors that determine the quality of a plant product according to its final use, from how to define and measure and preserve and manages the quality of these products.

On the other hand, students should acquire the basic vocabulary and understand the basics of plant production, from agronomy (irrigation management, fertilization and plant protection) to cropping systems (rotation and technical route) and cultivation technology that allows obtaining safe, high quality and environmentally friendly products.

STUDY LOAD

Type	Hours	Percentage
Hours small group	20,0	13.33
Hours large group	40,0	26.67
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

Principles of crop production

Description:

This content is devoted to the basic aspects of plant production, particularly to understand the technical solutions that allow a production environmentally friendly:

Challenges of agriculture and structure of agricultural production. Concept of cropping systems and types

Basic agronomic tools to establish and manage efficient and sustainable farming systems: rotation, soil work and other complementary elements

Related activities:

Activity 1: Theory lessons

Activity 2: Individual assessment test

Activity 3: Classroom or computer practices

Activity 4: Laboratory practices

Full-or-part-time: 56h

Theory classes: 15h

Laboratory classes: 8h

Self study : 33h

Field crops for agri-food industries

Description:

This content is aimed at knowing the field crops and understanding how genetics, environment and culture technology affect quality and safety of its products.

Agronomic features of large herbaceous crops

Cereals, oleoproteaginous and other crops

Factors, production techniques and quality management in large crops

Grain preservation

Effect of pests and diseases on the quality of the products of large crops

Related activities:

Activity 1: Theory lessons

Activity 2: Individual assessment test

Activity 4: Laboratory practices

Activity 5: Field practices

Full-or-part-time: 30h

Theory classes: 9h

Laboratory classes: 3h

Self study : 18h



Vegetable and fruit products

Description:

This content is dedicated to:

Systems, factors, production process and fruit and vegetable plant material.

Factors that determine the quality of fruit and vegetable products

Post-harvest of vegetables and fruits

Effect of pests and diseases on the quality of horticultural and fruit products

Related activities:

Activity 1: Theory lessons

Activity 2: Individual assessment test

Activity 4: Laboratory practices

Activity 5: Field practices

Full-or-part-time: 64h

Theory classes: 16h

Laboratory classes: 9h

Self study : 39h

GRADING SYSTEM

The overall assessment of the subject will be done taking into account the following partial assessments:

N1 is the result of the two individual assessment tests described in activity 2 (50% P1, plus 50% P2)

N2 is the note of the reports and questionnaires of practices: A1 and C weigh twice more than other activities

Final mark = $0,7 * N1 + 0.3 * N2$

EXAMINATION RULES.

Attendance and completion of the proposed activities is mandatory

The work must be submitted by the deadline

BIBLIOGRAPHY

Basic:

- Agrios, George N. Plant pathology [on line]. 5th ed. Burlington [etc.]: Elsevier Academic Press, 2005 [Consultation: 15/07/2022]. Available on: <https://www.sciencedirect-com.recursos.biblioteca.upc.edu/book/9780120445653/plant-pathology>. ISBN 0120445654.
- Baldini, Enrico; Iglesia González, José de la. Arboricultura general. Madrid: Mundi-Prensa, 1992. ISBN 8471143593.
- Randhawa, L. S.; Basra, Amarjit Singh. Quality improvement in field crops. New York [etc.]: Food Products Press, 2002. ISBN 1560221003.
- Maroto i Borrego, Josep Vicent. Horticultura herbacea especial. 5a ed. rev. y amp. Madrid [etc.]: Mundi-Prensa, 2002. ISBN 8484760421.
- Preece, John E; Read, Paul E. The Biology of horticulture : an introductory textbook. 2nd ed. Hoboken: John Wiley & Sons, 2005. ISBN 9780471465799.
- Saña Vilaseca, Josep; Moré Ramos, Joan Carles; Cohí Ramón, Alfred. La Gestión de la fertilidad de los suelos : fundamentos para la interpretación de los análisis de suelos y la recomendación de abonado. Madrid: Ministerio de Agricultura, Pesca y Alimentación, 1996. ISBN 8449101573.
- Thompson, Louis M.; Troeh, Frederick R. Los Suelos y su fertilidad [on line]. 4a ed. Barcelona [etc.]: Reverté, 1980 [Consultation: 26/07/2022]. Available on: https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=12532. ISBN 8429110410.
- Urbano Terrón, P. Fitotecnica : ingeniería de la producción vegetal. Madrid [etc.]: Mundi-Prensa, 2002. ISBN 8484760375.
- Villalobos, Francisco J. Fitotecnica : bases y tecnologías de la producción agrícola [on line]. 2a ed. corr. Madrid [etc.]: Mundi-Prensa, 2009 [Consultation: 15/07/2022]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pg-origsite=primo&docID=3175785>. ISBN 9788484763826.
- Pujol i Palol, Miquel. Cultius herbacis per a indústries agroalimentàries. Capellades: l'autor, 1998. ISBN 8460583988.
- Wilensky, Uri. An Introduction to agent-based modeling : modeling natural, social, and engineered complex systems with netlogo. Cambridge (Mass.): MIT Press, 2015. ISBN 9780262731898.

Complementary:

- Clark, A. (Ed.). Managing cover crops profitably [on line]. 3th. Beltsville: Sustainable Agriculture Network, 2007 [Consultation: 19/01/2017]. Available on: <https://soilandhealth.org/wp-content/uploads/0302hsted/covercropsbook.pdf>.
- FAO. Indicadores de la calidad de la tierra y su uso para la agricultura sostenible y el desarrollo rural [on line]. FAO, 2001 [Consultation: 15/04/2020]. Available on: <http://www.fao.org/docrep/004/w4745s/w4745s00.htm#toc>.
- Pretty, J.. "Agricultural sustainability: concepts, principles and evidence". Phil. Trans. R. Soc [on line]. 10.1098/rstb.2007.2163 [Consultation: 19/01/2017]. Available on: <http://rstb.royalsocietypublishing.org/content/363/1491/447.full.pdf+html>.- Viaux, Philippe. Les Systèmes intégrés : une troisième voie en grande culture. 2e édition. Paris: Éditions France Agricola, 2013. ISBN 9782855572390.
- García Marí, Fernando; Ferragut Pérez, Francisco. Las Plagas agrícolas. 3ª ed. Valencia: M. V. Phytoma, 2002. ISBN 8493205648.