Course guide
390341 - SC - Cropping Systems

Last modified: 04/07/2023

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 AGRONOMIC SCIENCE ENGINEERING (Syllabus 2018). (Compulsory subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: Gorchs Altarriba, Gil

Others: Gras Moreu, Anna
Carazo Gomez, Nuria

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE-CA-10. (ENG) Las bases de la producción vegetal, los sistemas de producción, de protección y de explotación.
CE-CA-21PA. (ENG) Tecnologías de la producción vegetal.
Sistemas de producción y explotación. Protección de cultivos contra plagas y enfermedades. Tecnología de sistemas de cultivo de especies herbáceas- Agroenergética-

Transversal:
CT5. (ENG) Uso solvente de los recursos de información. Gestionar la adquisición, la estructuración, el análisis y la visualización de datos e información en el ámbito de especialidad y valorar de forma crítica los resultados de dicha gestión.

TEACHING METHODOLOGY

In theoretical classes concepts that students have to learn are presented together with applied examples and questions. the concepts related to production organization at farm level, they are presented as students progress elaborating a global proposal of a farming system for farm.
In the practical sessions, the student works individually or in teams of 2-3 people and carries out the proposed activity to improve the ability to observe, solve problems, locate crop information and data, present results, programs and agronomic reports, and to discuss the vision of different groups.

LEARNING OBJECTIVES OF THE SUBJECT

At the end of the course students will be able to apply the acquired knowledge to conceive and to organize sustainable cropping systems. In particular, students will be able to characterize the different cropping systems and to propose suitable technical itineraries to obtain useful, safe and quality products for man, while preserving the environment and ensuring the competitiveness of the farm. Finally, students should be able to use the knowledge acquired to address the complex situations that occur in the field of Agronomy, a capacity that will be completed later on with other subjects such as field crops, and horticulture and fruit crops.

STUDY LOAD

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

Total learning time: 150 h

CONTENTS

Farming and cropping systems

Description:
Agricultural, vegetal production and cropping systems, and structure of the agricultural production
Cultivation cycle, productive aptitudes of cultivated species, and climatic conditions
Elements that compose a cropping system (SC): crops, crop rotation and cultivation practices
Design of efficient and sustainable cropping systems: choice of crop rotation and tillage system; use of cover crops and other complementary agri-environmental measures
Measuring the sustainability of a cropping system
Agronomic features of horticultural, fruit and field crops.
Non-food use of biomass and agroenergy crops

Related activities:
Activity 1: Lectures
Activity 2: Individual test
Activity 3: Laboratory practicals
Activity 4: Fieldwork and visits to agricultural companies and farms
Activity 5: Classroom or computer practicals

Full-or-part-time: 116h
Theory classes: 34h
Laboratory classes: 12h
Self study : 70h

Technical organization of farm production

Description:
Farms and farmers' decision-making process
Basic documents to organize farm production: documents of the farm structure and of the cropping system (cultivation sheet, gross margin, etc.)
Productive planning in herbaceous and in fruit plantations
Results and analysis of the cropping system

Related activities:
Activitat 1: classes d'explicació teòrica
Activitat 2: Prova individual d'avaluació: qüestionari en paper i/o Moodle
Activitat 5: Pràctiques en aula (informàtica i/o aula)

Full-or-part-time: 34h
Theory classes: 6h
Laboratory classes: 8h
Self study : 20h

ACTIVITIES

ACTIVITY 1. LECTURES

Full-or-part-time: 95h
Theory classes: 38h
Self study: 57h

ACTIVITY 2. WRITTEN EXAMS

Full-or-part-time: 4h
Theory classes: 2h
Self study: 2h

ACTIVITY 3: LABORATORY PRACTICES

Full-or-part-time: 16h
Laboratory classes: 6h
Self study: 10h

name english

Full-or-part-time: 4h
Laboratory classes: 2h
Self study: 2h

name english

Full-or-part-time: 31h
Laboratory classes: 12h
Self study: 19h

GRADING SYSTEM

The final mark for the course will take into account the following partial assessments:
• N1: the result of the two exams (P1 and P2).
• N2: the result of the farm management activity.
• N3: the result of the deliverables, tests and attendance of activities (L1, L2, L3, C1, A1 i A2), where A1 is twice the weight.

Final mark = 0.65 * N1 + 0.20 * N2 + 0.15 * N3

BIBLIOGRAPHY

Basic:

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- Juan Valero, José Arturo de; Ortega Álvarez, José Fernando; Tarjuelo Martín-Benito, José María. Sistemas de cultivo. Evaluación de itinerarios técnicos. Madrid: Consejería de Agricultura y Medio Ambiente. Junta de Comunidades de Castilla la Mancha : Mundi-Prensa, 2003. ISBN 848476138X.
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- Ortega Sada, José Luis. Manual de explotaciones agrícolas. Madrid: Ministerio de Agricultura, Pesca y Alimentación : Mundi-Prensa, 1993. ISBN 8471144263.
- Pujol i Palol, Miquel. Cultius herbacis per a indústries agroalimentàries. Capellades: l'autor, 1998. ISBN 8460583988.
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Complementary:

- López Bellido, Luis. Cultivos herbáceos. Madrid: Mundi-Prensa, 1991. ISBN 8471143240.
- Viaux, Philippe. Les Systèmes intégrés : une troisième voie en grande culture. 2e édition. Paris: Éditions France Agricole, 2013. ISBN 9782855572390.
- Clark, A. Managing cover crops profitably [on line]. 3a ed. Sustainable agriculture research & education, 2012 [Consultation: 16/04/2020]. Available on: https://www.sare.org/Learning-Center/Books/Managing-Cover-Crops-Profitably-3rd-Edition. ISBN 9781888626124.
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