Universitat de Lleida

DEGREE CURRICULUM

BROADACRE CROPS

Coordination: SAVIN PARISIER, ROXANA

Academic year 2023-24

BROADACRE CROPS 2023-24

Subject's general information

<table>
<tr><td>Subject name</td><td>BROADACRE CROPS</td></tr>
<tr><td>Code</td><td>102552</td></tr>
<tr><td>Semester</td><td>2nd Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
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<tr><th>Degree</th><th>Course</th><th>Character</th><th>Modality</th></tr>
<tr><td>Bachelor's Degree in Agricultural and Food Engineering</td><td>3</td><td>COMPULSORY</td><td>Attendance-based</td></tr>
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<tr><td>Course number of credits (ECTS)</td><td>9</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
<table>
<tr><th>Activity type</th><td>PRACAMP</td><td colspan="2">PRALAB</td><td>TEORIA</td></tr>
<tr><th>Number of credits</th><td>1.6</td><td>1.2</td><td>0.2</td><td>6</td></tr>
<tr><th>Number of groups</th><td>1</td><td>1</td><td>2</td><td>1</td></tr>
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<tr><td>Coordination</td><td>SAVIN PARISIER, ROXANA</td></tr>
<tr><td>Department</td><td>AGRICULTURAL AND FOREST SCIENCES AND ENGINEERING</td></tr>
<tr><td>Teaching load distribution between lectures and independent student work</td><td>Horas presenciales: 90
Horas no presenciales: 135</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>Catalán: 50%
Castellano: 50%</td></tr>
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BROADACRE CROPS 2023-24

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
SANTIVERI MORATA, FRANCISCA	paquita.santiveri@udl.cat	2,5	
SAVIN PARISIER, ROXANA	roxana.savin@udl.cat	5,3	
TAMAGNO , SANTIAGO	santiago.tamagno@udl.cat	1,2	

Subject's extra information

Field Crops is the most specific subject about the field crop production. It is based on the knowledge taught in the subject Technology of Herbaceous Crops during the first semester of the third year, and includes the physiological bases that influence the response of species to different cultivation techniques. It is, therefore, a finalist integrative subject that aims for students, from prior knowledge, to understand how a crop works and be able to design the most appropriate management to optimize crop yields within an agricultural system.

Recommendations
It is advisable to have studied and assimilated correctly the subject 'Herbaceous Crop Technology' corresponding to the first semester.

Learning objectives

The objectives to be achieved include:

RA1: Identify the physiological processes that determine yield in extensive crops
RA2: Analyze their physiology and their relationship with the management of the main field crops
RA3: Evaluate the influence of different cultivation techniques on the yield of field crops
RA4: Describe the most suitable cultivation technology for each species depending on the growing conditions
RA5: Understand the characteristics of the main production systems.

Competences

General skills

CG6. Ability to direct and manage all kinds of agri-food industries, farms and livestock, urban and / or rural green spaces, and public or private sports areas, with knowledge of new technologies, quality processes, traceability and certification and the techniques of marketing and marketing of food products and cultivated plants

CG8. Ability to solve problems with creativity, initiative, methodology and critical reasoning.

CG11. Ability to develop their activities, assuming a social, ethical and environmental commitment in tune with the reality of the human and natural environment.

CG12. Ability to work in multidisciplinary and multicultural teams.

Transversal skill

CT1. Correction in oral and written expression

Specific skills

CEEA2. Plant production technologies. Production and exploitation systems. Protection of crops against pests and diseases. Technology and systems for growing herbaceous species. Agroenergy.

Subject contents

Theory

I. Physiological bases of extensive crop production (16 hours)

Topic 1. Introduction to crop production: Evolution of yields. The Green Revolution and its consequences on the intensification of production (2 hours).

Topic 2. Ecology of extensive crops. Biotic and abiotic factors influencing species adaptation (2 hours).

Topic 3. Development: phenological cycle. Description of the development of extensive crops. Vegetative, reproductive and maturity period. Generation of organs. Phenological development scales (4 hours)

Topic 4. Crop growth: Accumulation and partition of dry matter, intercepted radiation and efficiency of radiation use (4 hours).

Topic 5. Mineral nutrition. Nutrient absorption. Efficiency of nutrient use (2 hours).

Topic 6. Use of water. Crop response to water availability. Water use efficiency (2 hours).

II. Physiology and management of extensive crops (24 hours)

Topic 7. Wheat. Ecophysiology of wheat. Analysis of the crop response to planting techniques, nitrogen fertilization and water availability (6 hours).

Topic 8. Corn. Ecophysiology of corn. Analysis of the crop response to planting techniques, nitrogen fertilization and water availability (6 hours).

Topic 9. Sunflower. Ecophysiology of the sunflower. Analysis of the crop response to planting techniques, nitrogen fertilization and water availability (2 hours).

Topic 10. Alfalfa. Ecophysiology of alfalfa. Analysis of the crop response to planting techniques, mowing frequency, nitrogen and potassium fertilization and water availability (6 hours).

Topic 11. Production of fodder. Most important forages. Cultivation techniques and their effects on yield (4 hours).

III. Cultivation systems (8 hours)

Topic 12. Fallow. Characteristics of the fallow land. Type of fallow. Advantages and disadvantages of using fallow land (2 hours).

Topic 13. Monoculture vs. crop rotations. Definitions. Advantages and disadvantages of monoculture and crop rotations (4 hours).

Topic 14. Associated crops. Characteristics of associated crops. Advantages and disadvantages of using associated crops (2 hours).

Laboratory and field practices (14 hours)

Practice 1.- Recognition of the main stages of phenological development (6 hours)

Practice 2.- Determination of radiation interception: methodology and interpretation of the results (2 hours).

Practice 3.- Determination of growth and performance components: methodology and interpretation of results (2

hours)

Practice 4.- Nutrient use. Determination of the nutritional status of crops. Interpretation of the results (2 hours).

Practice 5.- Use of water. Determination of the water status of crops. Interpretation of results (2 hours)

Workshops - Case resolution (4 hours)

Workshop 1. Crop ecophysiology

Workshop 2. Corn and winter cereals

Short theoretical-practical questionnaires (6h)

Questionnaire 1. Crop development and growth

Questionnaire 2. Nutrients and water

Questionnaire 3. Winter Cereals

Questionnaire 4. Corn and sunflower

Questionnaire 5. Legumes and forrages

Questionnaire 6. Crop rotations

Field trips and visits program (14 hours)

1.- Winter cereal variety tests (4 hours).

2.- Visit to the Almacelles cooperative, corn trials and agricultural exploitation with different silages (4 hours).

3.- Visit to a forage dehydrator (2 hours).

4.- Visit to Semillas Batlle and an agricultural - livestock farm in the Pla de Vencilló (4 hours)

The visits may be replaced by other similar ones depending on the availability of the farm/companies/institution.

Methodology

Activity	Description	Face to face activity		Autonomous activity		Evaluation	Hours	
		Objectives	Hours	Student work	Hours	Hours	Hours	ECTS
Master class	Master class	Explanation of the main concepts	**48**	Study: Know, understand and synthesize knowledge	**72**	**5**	**125**	**5**
Laboratory and field practices	Participatory class	Application of the theoretical concepts taught in master classes	**14**	Solve problems and cases. Write reports	**16**		**30**	**1,2**
Workshops	Participatory class	Execution of the exercises	**8**	Write reports	**25**		**40**	**1,6**
Visits	Visits to fields, farms and agricultural companies	Application of the theoretical - practical concepts. Knowledge of professional activity	**20**	Write reports	**14**		**30**	**1,2**
Totals			**90**		**125**	**10**	**225**	**9**

Development plan

Activity	Content	Objectives	Hours	
Master class	Topic 1	RA1-RA2	**2**	
Master class	Topic 2	RA1-RA2	**2**	
Master class	Topic 3	RA1-RA2	**4**	
Laboratory and field practices	Practise 1 (1ª parte)	RA1-RA2	**2**	
Master class	Topic 4	RA1-RA2	**4**	
Laboratory and field practices	Practise 2	RA1-RA2	**2**	
Master class	Topic 5	RA1-RA2	**2**	
Laboratory and field practices	Practise 3	RA1-RA2	**2**	
Laboratory and field practices	Practise 4	RA1-RA2	**2**	
Master class	Topic 6	RA1-RA2	**2**	
Laboratory and field practices	Practise 5	RA1-RA2	**2**	
Laboratory and field practices	Practise 1 (2ªparte)	RA1-RA2	2	
Master class	Topic 7	RA2-RA3-RA4	**6**	
Visits	Visit 1	RA3-RA4-RA5	**4**	
Workshosp	Workshosp 1	RA1-RA2	**2**	
Master class	Topic 8	RA2-RA3-RA4	**6**	
Visits	Visit 2	RA3-RA4-RA5	**2**	
Master class	Topic 9	RA2-RA3-RA4	**2**	
Master class	Topic 10	RA2-RA3-RA4	**6**	
Visits	Visit 3	RA3-RA4-RA5	**4**	
Workshosp	Workshosp 2	RA3	**2**	

Master class	Topic 11	RA2-RA3-RA4	**4**	
Master class	Topic 12	RA5	**2**	
Laboratory and field practices	Practise 1 (3ª parte)	RA1-RA2	**2**	
Workshosp	Workshosp 3	RA3-RA4	**2**	
Visits	Visit 4	RA3-RA4-RA5	**4**	
Master class	Topic 13	RA5	**4**	
Master class	Topic 14	RA5	**2**	
Master class	Topic 15	RA5	**2**	
Workshosp	Workshosp 4	RA5	**2**	
Visits	Visit 5	RA3-RA4-RA5	**4**	
Totals			**90**	

Evaluation

Activity	Evaluation	Number	%
Master class	Exams	**3**	**60%**
Laboratory and field practices and Technical visites	Attendance	**9**	**15%**
Theoretical and practical questionnaires	Theoretical and practical questionnaires	**6**	**25%**
Total			**100**

Observations
Attendance at all practical laboratory, field sessions, workshops and technical visits is compulsory.
To pass the course it will be necessary to obtain a grade equal to or greater than 5 points in the different activities. In theory, it will be necessary to obtain a 5 in all the written tests to pass it. If not, it will be necessary to make up the exams with a grade lower than 5.

Alternative avaluation

The alternative evaluation will consist of a global theoretical-practical exam that will account for 85% of the final grade. Attendance at field and laboratory practices and visits will be mandatory, with a weight of 15% in the course grade.

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