

**Información del Plan Docente**

<b>Academic Year</b>	2017/18
<b>Faculty / School</b>	105 - Facultad de Veterinaria
<b>Degree</b>	451 - Degree in Veterinary Science
<b>ECTS</b>	6.0
<b>Year</b>	2
<b>Semester</b>	First semester
<b>Subject Type</b>	Compulsory
<b>Module</b>	---

**1.General information****1.1.Introduction****1.2.Recommendations to take this course****1.3.Context and importance of this course in the degree****1.4.Activities and key dates****2.Learning goals****2.1.Learning goals****2.2.Importance of learning goals****3.Aims of the course and competences****3.1.Aims of the course****3.2.Competences****4.Assessment (1st and 2nd call)****4.1.Assessment tasks (description of tasks, marking system and assessment criteria)****5.Methodology, learning tasks, syllabus and resources****5.1.Methodological overview**

*The learning process is structured around 42 lectures of 50 minutes each, 17 hours of laboratory work (in four types of practices), 1 hour of workshops, and one written/presented essay of the student. Globally, there are 150 hours of work of the student, including (60 face-to-face sessions).*

*The lectures will develop the theoretical concepts of the Programme. The lectures presentations will be available in the Official Reprography Service of the Veterinary Faculty and the Digital Teaching Web (ADD). Teaching resources not*

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*provided by the Official Services of the University are not responsibility, and are not edited or revised by the teaching staff. The evaluation process will be done exclusively on the contents of the present course.*

*An outline of the practice sessions will be provided to the students.*

*The security measures in the laboratory are the following:*

### GENERAL SECURITY GUIDELINE IN THE LAB

*- Bring the practice sessions outline to the laboratory*

*-Wear appropriate clothes to avoid contact with chemical products: bring laboratory coat and wear it appropriately settled; wear lab goggles and appropriate shoes*

*-In case of any kind of allergy, the student has to inform the teacher responsible of the practice*

*-Do not wear contact lenses*

*-Eat and drink are not permitted in the lab*

*All the attendees have to be aware of the general information provided by the UPRL <http://uprl.unizar.es/estudiantes.html>*

## 5.2.Learning tasks

*Learning tasks consist of: lectures, laboratory practical sessions, guest speakers conferences and workshops, and written and presented essays.*

### Learning activities (abstract)

Activities	Face-to-face sessions (h)	Student autonomous work (h)	Total
Lectures	42	55	97
Workshops	3		3

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Laboratory tasks	17	15	32
Written/presented essay		20	20
<b>Total</b>	<b>60</b>	<b>90</b>	<b>150</b>

### 5.3.Syllabus

The course will address following topics:

Section 1. *Agriculture, Agronomy, Plant breeding, Livestock breeding. Historical origins. Importance of the Agricultural Sector. Interactions between Plant Breeding, Livestock breeding, Human and Animal feeding.*

*Learning Activities:*

Lectures, 3 hours.

Section 2. *Agroecology. Agroecosystems, Agri-Livestock Ecosystems, Agroforestry. Agricultural systemas. Mixed crop-livestock systems. Trophic and energetic fluxes in Agroecosystems. Ecosystem Services. Climate and Soils as Agroecosystems and Plant Production factors. Organic farming. Nutrients and iis interactions in soil-plant-animal subsystems.*

*Learning Activities:*

Lectures, 5 hours.

Section 3. *Agricultural techniques related to the use of water, soil fertility and crops.*

*Learning Activities:*

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Lectures, 5 hours.

Section 4. *Chemical and Bromatological Assessment of plant resources for Animal feeding. Feeds classification. Botany and Animal feeding. Main botanical Families in Animal feeding.*

*Learning Activities:*

Lectures, 3 hours.

*Practical work AGRO1, 5 hours. Chemical and Bromatological Assessment of plant resources for Animal feeding. Weende analysis.*

Section 5. *Energetic concentrate feeds: cereals, roots and tubers, agrifood industry energetic by-products.*

*Learning Activities:*

Lectures, 5 hours.

*Practical work AGRO2, 5 hours. Cereals, roots and tubers, agrifood industry by-products identification.*

Section 6. *Concentrate protein-rich feeds: cakes and meals, pulses, agrifood industry protein-rich by-products.*

*Learning Activities:*

Lectures, 5 hours.

*Practical work AGRO2, 5 hours. Concentrate protein-rich feeds: cakes and meals, pulses, agrifood industry protein-rich by-products identification.*

Section 7. *Concentrate feeds types. Concentrate feeds production technology.*

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### *Learning Activities:*

Lectures, 1 hour.

*Practical work AGRO2, 1 hour. Raw components and Concentrate feeds types.*

Section 8. *Energetic and protein-rich feeds for beehives. Melliferous flora and natural vegetation, Melliferous crops.*

### *Learning Activities:*

Lectures, 1 hour.

Section 9. *Grass and forage Science. Multifunctionality of grasslands and livestock farming. Worldwide natural and cultivated grasslands.*

### *Learning Activities:*

Lectures, 3 hours.

Section 10. *Forage conservation systems: hay-making, silage, dehydration processes.*

### *Learning Activities:*

Lectures, 1 hour.

*Practical work AGRO3, 2 hours. Forage conservation systems.*

Section 11. *Grass and legume grasses. The alfalfa.*

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### *Learning Activities:*

Lectures, 4 hours.

*Practical work AGRO2, 2 hours. Grass and legume grasses identification.*

*Section 12. Grazing and Ecosystem Services. Stocking rates. Water. Grasslands Toxic species. Transhumance and Transterminance. Grass and forage scheduling.*

### *Learning Activities:*

Lectures, 4 hours.

*Practical work AGRO2, 1 hour. Grassland toxic species identification.*

*Section 13. Low nutritional quality feeds: crops and agrofood residues.*

*Unifeeds, whole mixed rations for ruminants.*

### *Learning Activities:*

Lectures, 1 hour.

Other learning tasks -essays and workshops with guest speakers- are related to several topics.

## **5.4.Course planning and calendar**

For further details concerning the timetable, classroom and further information regarding this course please refer to the Veterinary Faculty Web site

( <http://veterinaria.unizar.es/gradoveterinaria/> ) and to the ADD site

(<http://add.unizar.es/add/campusvirtual/>).

## **5.5.Bibliography and recommended resources**

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The present academic course bibliography is updated and available in the Unizar Library web site:

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=28411&Identificador=13178>