

## **PLANT BIOLOGY, AGRICULTURE AND ENVIRONMENT**

**Study Programme: MIMV      Curricular Year: 1<sup>st</sup>   Semester: 2<sup>nd</sup>   Compulsory   Credits: 5.0 ECTS**

**Lecturer(s): José Pedro Lemos (CCP); Maria João Fradinho (R), Magda Aguiar, Pedro Bule**

### **1. Contact hours:**

**Lectures – 26; Lecture/Practicals – 4; Praticals – 18; Field work - 4; Total – 56**

### **2. Objectives:**

The course in Plant biology, Agriculture and Environment will describe the basic concepts of plant biology which allow the understanding of the methodologies used in Agriculture for the production and preservation of animal feedstuffs, with the perspective of developing sustainable production systems that protect the environment and the ecosystems.

### **3. Programme:**

Concepts in Agriculture: Definition, objectives and relevance of agriculture; production systems. The Portuguese agriculture. Plant biology: Effects of environment on vegetal production; fertilisation; Plant metabolism and physiology. Portuguese climate and soils. Cultural activities and machinery. Seeding and harvesting; use of pesticides. Forage production: Forage growth curve; choosing species and varieties; chemical composition. Forage conservation: Justification; methods of conservation (hay, silage, haylage; dehydrated); nutritive value; choosing the conservation method. Pasture production: Pastures in Portugal and in the world; seeding and/or improving pastures; main species and varieties used in Portugal. Pasture management. Animal production systems: role of the animal in the agricultural environment. Agriculture and environmental pollution: Main sources, prevention and control of agricultural and animal production pollution. Preservation of the ecosystems.

### **4. Bibliography:**

Eliard, J.L. (1989). *Manual de agricultura geral*. Coleção EuroAgro, Publicações Europa América.  
Macdonald, P, Edwards, RA, Greenhalgh, JDF & Morgan, CA, Sinclair, LA, Wilkinson, RG (2011). *Animal Nutrition*. Seventh Edition. Prentice Hall.  
Pardo, E.M. & Garcia, C.R. (1989). *Praderas e forrajes- produccion y aprovechamiento*. Ediciones Mundi-Prensa.  
Regulation (EU) 2017/1017, regarding feed materials catalogue.  
Vasconcelos T, Monteiro A, Torres MO, Sá G. & Forte, P. (2014). *Infestantes de Pastagens. Plantas tóxicas e Agressivas*. Série Didáctica Herbologia 6 (Monteiro A, Coord.). ISAPress, Lisboa.  
Class handouts, lecture notes, scientific and technical papers.

### **5. Assessment:**

The practical assessment is based on two components: a written exam and two essays. The theoretical assessment is also based on a written exam. The final classification is the arithmetic average of the theoretical assessment and the practical assessment.