

PLANT BIOLOGY, AGRICULTURE AND ENVIRONMENT

Study Programme: MIMV Curricular Year: 1st Semester: 2nd Compulsory Credits: 5.0 ECTS

Lecturer(s): Rui Bessa (CCP); Maria João Fradinho (R), 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 feedstuffs, with the perspective of developing sustainable production systems that protect the environment and the ecosystems.

3. Programme:

The role of agriculture in societies. Agricultural production in Portugal, in Europe and in the World – productive, social and economic indicators. Plant biology: plant metabolism and physiology. Effects of environment on vegetal production. The elements of the climate. Soils and their fertility. Forage production: production curve; selection of species and varieties; chemical composition (evolution, relationship with production curve, ideal cutting time). Forage conservation: justification; conservation methods; nutritional value. Pasture production: types of pastures in Portugal and around the world; classification; main species and varieties cultivated in Portugal. Pasture management: animal/pasture and animal/soil relationship; grazing systems; stocking rates. 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 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) 2022/1104, 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.