

**Code: 1667 Botany and Zoology**Degree: all 1<sup>st</sup> cyclesCurricular Year: 1<sup>st</sup>

Credits: 6 ECTS

Language: Portuguese/English

Responsible: Ana Maria da Silva Monteiro

Semester Course: 2<sup>nd</sup>

Compulsory

**Other lecturer(s):** Arlindo Lima, Elisabete Tavares Lacerda de Figueiredo Oliveira, José Carlos Augusta da Costa, José Carlos Franco Santos Silva, Manuela Rodrigues Branco Simões, Maria Dalila Paula Silva Lourenço do Espírito Santo, Maria Edite Ribeiro Cardoso Texugo de Sousa and Maria Teresa Marques Ferreira da Cunha Cardoso

**Web Site:** <http://www.isa.utl.pt/home/node/3949>

**1. Contact hours:**

Lectures 47 Praticals/Laboratory 23 Others 14 Total 84

**2. Objectives:**

The discipline has two parts.

Botany deals with the evolution of the plant world, the internal and external organization of plants, the main taxonomic groups, the plant species having interest to human society, the study of plant communities and the distribution and conservation of plant species.

Zoology deals with the organization principles of the animal kingdom, including evolutionary plans, origin and development, characteristics of the most important animal taxa groups, general anatomy and life cycles, portuguese species, their value and conservation status.

**3. Programme:****Botany**

Classification of vascular plants *sensu lato*. Introduction to Taxonomy and Vegetal nomenclature. Nowadays classification system. Main taxonomic vascular plant groups. General evolution aspects of plant anatomy and morphology. Plant surveys, *taxa* preparation and Herbarium inclusion rules. Biological types. Root, stem, leaf flower and fruit morphology. Principal plant tissues and their main histological characteristics. Primary and secondary anatomy of some taxonomy groups. Morpho- and anatomical plant adaptations to the environmental conditions. Corology. Introduction to the plant communities, bioclimatology and biogeography.

**Zoology**

Organization of the animal kingdom. Evolution plans. Characteristics and aspects of life cycle of organisms representing different evolution plans. Filo Arthropoda (Myriapoda, Chelicerata, Hexapoda, Crustacea). General characteristics of Arthropoda, evolution and taxonomy. Examples of portuguese species. Insecta: External morphology and life cycles.. Taxa organization. Characteristics of main orders: Hemiptera, Coleoptera, Lepidoptera, Diptera, Hymenoptera. Examples of species with ecological and economic interest. Cordates. Main evolution pathways. Agnatha e Gnathostomata. Amphibia, Reptiles, Birds and Mammals, ecology and life cycles. Main taxa groups. Portuguese species, conservation status.

**4. Bibliography:****Main Bibliography**

Espírito-Santo M.D., & Monteiro A. 2009. *Infestantes das Culturas Agrícolas. Chaves de Identificação*. Ed. ISAPress. 90 pp

Hickman Cp, Roberts Ls, Larson A, L'anson H & Eisenhour Dj (2006) *Integrated Principles of Zoology*. McGraw Hill Higher Education. New York.

Moreira I 2010. *Anatomia das Plantas. Estruturas*. Série Didáctica Botânica 2. ISAPress. Lisboa. Portugal

Pough, F.H., Janis, C.M. & Heiser, J. B. 2006. *Vertebrate Life*. Prentice-Hall. New Jersey. 7th Edition. Prentice Hall. New-York.

Vasconcellos JC, Coutinho MCP & Franco JA 1969. *Noções sobre a Morfologia Externa das Plantas Superiores*. Dir. Ger. Serv.Agric. Lisboa.

**Other Bibliography**

Carvalho J P (1986) *Introdução à entomologia agrícola*. FC Gulbenkian, Lisboa

Daly Hv, Doyen Jt & Purcell Ah (1998) *Introduction to insect biology and diversity*. Oxford University Press

Gullan Pj & Cranston Ps (1994) *The insects. An outline of Entomology*. Chapman & Hall, London

Kardong, K. (2005). *Vertebrates: Comparative Anatomy, Function, Evolution* McGraw-Hill Science Engineering New-York

Raven PH, Evert RF & Eichhorn SE 2005. *Biology of plants*. 7<sup>a</sup> Ed. WH Freeman and Company Publishers. New York.

**5. Assessment:**

To be admitted to the Final Exam, the students are obliged to participate at least at 75% of the total of the Practical classes;

The evaluation is continuous including short tests, practical reports and presentation of case-studies. A final average value  $\geq 12$  values is the final grade, or

Final Exam – *handwrite or/and oral discussion semester continuous if  $\geq 10$  values*

**6. Estimated Workload**

168	Hours
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**7. Last Update:**

25/2/2011
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