Code: 1713 **Terrestrial and Aquatic Environments**
Degree: 1st cycle - Biology
Curricular Year: 2nd **Semester Course: 1st**
Credits: 8 ECTS **Compulsory**
Language: Portuguese/English
Prerequisites: Physics I
Responsible: Manuel Armando Valeriano Madeira
Other lecturer(s): Fernando Manuel Girão Monteiro, Francisco Manuel Souto Gonçalves de Abreu and Nuno Renato da Silva Cortez
Web Site: http://www.isa.utl.pt/home/node/3954

1. Contact hours:
Lectures 28 **Practicals/Laboratory** 56 **Others** 28 **Total** 112

2. Objectives:

Acquisition of general knowledge on the main geoclimate zones, understanding on the crust constitution and processes related to soil formation and respective ecological distribution. Understanding on the relationships between soils and terrestrial and aquatic ecosystems functioning and processes related to ecosystems stability. Capacity to evaluate soil quality and to analyse risks and impacts of different soil and water bodies management systems on terrestrial and aquatic environment.

3. Programme:

Module a -The climate system. The atmosphere. General atmospheric circulation. Water cycle. Geoclimate zones.
Module b - Aquatic system as a biota. Main properties of water as a life support system. Main divisions in freshwater and marine ecosystems
Module c - Earth crust constitution. Rock types and rock forming minerals. Rock weathering and genesis of secondary minerals.
Module d – Soil ecological functions. Constitution and physical and chemical properties of soils. Role of soils in the ecosystems.

4. Bibliography:

Main Bibliography

Tarbuck, E. J.; Lutgens, F. K. & Tasa, D. 2005. Ciências de la Tierra - Una Introdución a la Geología Física (8ª ed). Pearson Educación S. A.. Madrid.
Brady, N. C. & Weil, R.R. 1999. The Nature and Properties of Soil (12th ed). Prentice Hall, New Jersey. (Chapters: 1, 2, 3)
Miranda, P. M. A., 2001. Meteorologia e Ambiente. Univ. Aberta
Santos, F. D. & Miranda, P, 2006. Alterações Climáticas em Portugal. Cenários, Impactos e Medidas de Adaptação, Projecto SIAM II. Gradiva

Other Bibliography

White, R.E. 1997. Principles and Practice of Soil Science, (3rd edition). Oxford, Blackwell Science

5. Assessment:

Four tests (one per each module)
To exempt the Final Examination an average mark ≥10 is needed; the minimum mark in each module is 8; or
A **Final Examination** (mark ≥10) encompassing the four modules (a minimum mark of 8 for each modules is needed).
Test marks can contribute in 40% for the final examination mark.

6. Estimated Workload:	224	Hours
7. Last Update:	9/3/2011	