Code: 1431 **Mesology of Tropical Areas**
Degree: 2nd cycle – Tropical Agriculture and Sustainable Development
Curricular Year: 1st **Semester Course: 2nd**
Credits: 6 ECTS **Optional**
Language: Portuguese/English
Responsible: Fernando Manuel Girão Monteiro
Other lecturer(s): -
Web Site: http://www.isa.utl.pt/home/node/3748

1. Contact hours:
Lectures 24 **Lecture/Practicals** 36 **Praticals/Laboratory** 10 **Others** 14 **Total** 84

2. Objectives:

To understand the climatic regimes of the tropics, the behaviour and variability of the weather elements and its influence on plant production; to know the conditions of formation, the characteristics and the properties of tropical soils, their use and role in the sustainability of natural and artificial ecosystems.
To develop abilities to analyse, evaluate, and solve problems in this domain, namely through a) the study of the characteristics of the physical environment and of its influence on agricultural activities, and on soil evolution and properties, and b) the outlining of environmentally and economically sustainable systems of soil management.

3. Programme:

1. Tropical climatology (3 weeks):
Atmospheric circulation, daily and seasonal behaviour of some weather elements, energy and water budgets in the tropics. Agrometeorology applied to tropical crops: availability and interception of resources.
2. Tropical soils genesis and distribution (4 weeks):
Pedogenetic environment and soil forming processes in the tropical areas. Geographical and landscape distribution of the most representative tropical soils, and its taxonomical placement in the main soil classification systems.
3. Tropical soils properties and use (5 weeks):
Specific properties of the most representative soils in tropical areas. Soil management and sustainability of ecosystems. Soil degradation, resilience, reclamation and rehabilitation.
4. Specific case-studies (2 weeks)

4. Bibliography:

Main Bibliography

Jackson, I. J. 1989. *Climate, water and agriculture in the tropics.* (2nd edition). Longman Publishing Group, London.
van Wambeke, A. 1992. *Soils of the Tropics - Properties and appraisal.* McGraw-Hill, New York.
Sanchez, P. A. 1976. *Properties and Management of Soils in the Tropics.* John Wiley & Sons, New York.
Juo, A. S. R. & Franzluebbers, K. 2003. *Tropical Soils: Properties and Management for Sustainable Agriculture.* Oxford University Press, New York.

Other Bibliography

Lal, R. & Sanchez, P.A., Editors. 1992. *Myths and Science of Soils of the Tropics.* SSSA Special Publication vol. 29. SSSA-ASA, Madison.
Fisher, R. F., Binkley, O. 2000. *Ecology and management of forest soils* (3rd ed). John Wiley & Sons, New York.
FAO, 2006. *World Reference Base for Soil Resources, 2006 edition*. World Soil Resources Reports 103, FAO, Rome.
Soil Survey Staff, 2006. *Keys to Soil taxonomy*, 10th ed.. United States Department of Agriculture, National Resources Conservation Service. Washington D.C..

5. Assessment:

Assessment includes:
a) Three tests or bibliographic revision exercises related to each of the course modules (weighting at least 40% in the final classification if a final examination is performed);
b) A final examination (only compulsory if the arithmetic mean of tests and/or exercises is <10/20 points).

6. Estimated Workload:	168	Hours
7. Last Update:	16/7/2010	