Code: 1503 **Geographic Information Systems**
Degree: 2nd cycle – Mathematics Applied to Biological Sciences; Agriculture
Stream: Agriculture - Agricultural and Environmental Economics and Rural Development; Agricultural Engineering
Curricular Year: 1st (MABS) / **2nd** (Agr) **Semester Course: 2nd**
Credits: 6 ECTS **Optional**
Language: Portuguese/English
Responsible: Maria da Graça Corte-Real Mira da Silva Abrantes e Manuel Lameiras de Figueiredo Campagnolo
Other lecturer(s): -
Web Site: http://www.isa.utl.pt/home/node/3808

1. Contact hours:
Lecture/Practicals 70 **Others** 14 **Total** 84

2. Objectives:

Techniques and methods of cartographic modelling for GIS applications
Spatial analysis operations in GIS environment for model implementation
Implementation and exploration of topological constraints intra-themes and inter-themes
Procedure automatization concerning spatial data

3. Programme:

Spatial data structures. Definition of basic spatial operations. Data integration. Cartographic models conceptualization. Using Arc/GIS.
Modelling problems solving requiring spatial data. Advanced spatial analysis operations.
Implementation of geodatabases. Definition of spatial data integrity constraints. Spatial analysis of networks.
Introduction to automatic procedure development for spatial data processing.

4. Bibliography:

Main Bibliography

P. Longley, M. Goodchild, D. Maguire, D. Rhind, 2005, *Geographic Information Systems and Science*, 2nd Edition, Wiley
R. Laurini, D. Thompson, 1993, *Fundamentals of Spatial Information Systems*, Academic Press, (A.P.I.C. Series, No 37)

Other Bibliography

J. L. Matos, 2001. *Fundamentos de Informação Geográfica* (Lidel).
T.Ormsby, E.Napoleon, R.Burke, C.Groessl, L.Feaster,2004, *Getting to Know ArcGIS Desktop*, 2nd edition, ESRI Press

5. Assessment:

Assignment and exam

6. Estimated Workload: 168 Hours
7. Last Update: 15/7/2010