Code: 1683 **Applied Environmental Statistics**
Degree: 2nd cycle – Environmental Engineering
Stream: all
Curricular Year: 1st **Semester Course: 1st**
Credits: 6 ECTS **Compulsory**
Language: Portuguese/English
Responsible: Maria João Teixeira Martins
Other lecturer(s): Jorge Filipe Campinos Landerset Cadima
Web Site: http://www.isa.utl.pt/home/node/3880

1. Contact hours
Lectures 35 **Practicals/Laboratory** 35 **Others** 14 **Total** 84

2. Objectives:

Complement the basic training in statistics. It is intended that students acquire theoretical and applied skills in suitable methodologies, to the processing of environmental data, such as regression, analysis of variance, analysis of temporal data and spatial data. The applications will be conducted using a statistical software.

3. Programme:

1 - Linear Model
- Objectives
- Simple and Multiple Linear Regression
- The concepts of experimental design
- Analysis of variance with fixed effects: models for one and two factors

2 - Time Series
- Objectives
- Exploratory analysis of time series
- Some stochastic models: fitting and prediction

3 - Geostatistics
- Introduction
- Modeling spatial continuity
- Introduction to geostatistical estimation

4. Bibliography:

Main Bibliography

Kutner, M.H.; Nachtsheim, C.J.; Neter, J. e Li, W. (2005), Applied Linear Statistical Models, Irwin.
Murteira, B.J.F.; Muller, D.A.; Turkman, K.F. (1993), Análise de Sucessões Cronológicas, Mc Graw Hill.
Soares, A. (2000), Geoestatística para as Ciências da Terra e do Ambiente, IST Press.

Other Bibliography

Draper and Smith (1998), Applied Regression Analysis, John Wiley & Sons.
Janacek, G. (2001), Practical Time Series, Hodder Education.
Montgomery, D.C. e Peck, E.A. (1982), Introduction to Linear Regression Analysis, John Wiley & Sons.
Seber, G.A.F. (1977), Linear Regression Analysis, John Wiley & Sons.
Shumway, R.S.; Stoffer, D.S., (2006), Time series analysis and its applications with R examples, Springer.

5. Assessment:

Tests and exams

6. Estimated Workload: 168 Hours

7. Last Update: 20/7/2010