Code: 1364 **Economy of Natural Resources Management**
Degree: 2nd cycle – Agriculture
Stream: Agriculture - Agricultural and Environmental Economics and Rural Development
Curricular Year: 2nd **Semester Course: 1st**
Credits: 6 ECTS **Optional**
Language: Portuguese/English
Responsible: José Manuel Osório de Barros de Lima e Santos
Other lecturer(s): Raúl da Fonseca Fernandes Jorge
Web Site: http://www.isa.utl.pt/home/node/3869

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

2. Objectives:

Students should:
- understand the basic economic problem of choice in settings where resources are scarce;
- understand the basic economic problem of optimal dynamic allocation of stock-type resources;
- learn the basic economic concepts underlying the economic approach to natural resources;
- acquire the required analytical skills to formulate and solve problems of optimal management of natural resources.

3. Programme:

I - An introduction to environmental and natural resource economics
Scarcity, opportunity cost and choice. The economic functions of the environment. Pareto optimality, market failure and public intervention (Pigou and Coase). Market, property rights and environmental policy. The polluter-pays, user-pays and provider-gets principles. Economic evaluation of environmental policies.
II - The economic analysis of pollution
Steps in the definition of a pollution control policy. Policy tools. The role of environmental economics in the definition of control policies. The optimal pollution level. Practical limits to optimizing policies. Cost-efficient tools. Non-additive and diffuse pollutions.
III - The economic analysis of biodiversity
Economic causes of biodiversity loss. Conservation strategies – the role of environmental economics. Cost-efficient conservation policies. The economic value of biodiversity.
IV - The Economic analysis of natural resource management
Cost-benefit analysis. Theoretical foundations. Operational steps of a cost-benefit analysis. Time and discounting in cost-benefit analysis. Optimal dynamic allocation of stock-type natural resources. Examples of models for different types of resources: non-renewable (exhaustible), open access renewable, forests, water, etc.

4. Bibliography:

Main Bibliography
Nick Hanley e Clive Spash (1993). *Cost-benefit analysis and the environment*. Edward Elgar, Akldershot.
Tom Tietenberg (1988). *Environmental and Natural Resource Economics*. 3ª Edição. Harper Collins Publishers, Nova Iorque.

Other Bibliography
Daniel W. Bromley e Ian Hodge (1990). Private property rights and presumptive policy entitlements: reconsidering the premises of rural policy. European Review of Agricultural Economics vol. 17 (2), pp. 197-214.
OECD (sd). Saving biological diversity. Economic Incentives. Organization for Economic Co-operation and Development, Paris.

5. Assessment:

- Final tests for each of the 4 modules (weight 55%); - An assignment about an issue, chosen by the student, among a list of proposed issues related to module 4 (weight 30%); - Seminar for the presentation and discussion of solved problems (weight 15%).

6. Estimated Workload:	168	Hours
7. Last Update:	18/8/2010	