



Faculté d'ingénierie biologique, agronomique et environnementale

AGRO

BIR1343

Environmental and Natural Resources Economics

[37.5h+7.5h exercises] 3.5 credits

This course is taught in the 2nd semester

Teacher(s): Frédéric Gaspart
Language: french
Level: 1st cycle course

Aims

The objective of this course is to familiarize the students with the economic analysis applied to the management of the environment and natural resources. It is centered on a microeconomic approach to the optimal management of the natural resources and the environment. Economic models are used to analyze the efficiency of the market's allocation and the different instruments which the public decision makers dispose of. Project evaluation methods and the models of natural resources' management are presented. At the end of the course, the students will have acquired a basis allowing them to analyze environmental problems and policies inform an economic point of view. The students will have to master the concepts of opportunity costs in the political or private decision making and the importance of discounting of future costs and benefits.

Main themes

In the first part, the course presents and discusses the theoretic fundamentals, necessary to apprehend the questions of environment and natural resources conservation and management (theory of the social welfare and of efficiency, public goods and externalities, property rights and cost-benefit analysis.)

In the second part, the course presents and compares 1) the most common evaluation methods of damages and benefits to the environment and 2) the economical and statutory instruments of the environmental politics (standards, taxes, subsidies, tradable pollution permits.)

In the third part, the course approaches the questions of optimal resource allocation, distinguishing the renewable from the exhaustible resources.

The course concludes on questions of sustainable development. Case studies, examples and exercises are used to illustrate the concepts and the methods studied.

Content and teaching methods

Summary: content and methods

1. Individual choice in a finite set and in a vectorial space under budget constraint, properties of individual demands, behaviour of a private firm
2. General equilibrium: one consumer and one firm, Edgeworth box ; fundamental theorem of welfare economics
3. Competitive models with unilateral pollution (Pigou), renewable resources ("Easter Island") and non-renewable (Hotelling's rule)
4. Strategic models of public goods, reciprocal pollution, Tragedy of the Commons

Every three courses, students are given a few exercises in order to consolidate previously studied topics and to explore topics to be studied shortly. These exercises must be solved individually in ten days of time and are solved later in class.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Precursory courses : BIR 1241 'Economie politique et sociale', BIR 1342 'Economie rurale' or a course of micro-economics

Supplemental courses : BAPA 2203 'Recherche opérationnelle en agriculture' or a course of environmental economics

Evaluation : at the end of the course, written examination

Support : Lecture notes, text book, personal notes and overhead slides

Teaching team : teacher + assistant

Miscellaneous : The course is given in two parts: 7.5h of revision of micro- and welfare economics and 30h of natural resource and environmental economics. The course is followed by practical exercises covering case studies and the application of microeconomic tools.

Other credits in programs

AGRO23/I	Troisième année du programme conduisant au grade de bio-ingénieur (Economie et sociologie rurales)		Mandatory
AGRO23/J	Troisième année du programme conduisant au grade de bio-ingénieur (Economie & sociologie rurales appliquées aux pays en dévelop)		Mandatory
ARCH22	Deuxième année du programme conduisant au grade d'ingénieur civil architecte	(3.5 credits)	
BIR21/E	Première année du programme conduisant au grade de bio-ingénieur (Environnement)	(3.5 credits)	Mandatory
BIR22/8A	Deuxième année du programme conduisant au grade de bio-ingénieur : Sciences agronomiques (Intégrée, productions animales, végétales & économie)	(3.5 credits)	Mandatory
ENVI3DS/1	Diplôme d'études spécialisées en science et gestion de l'environnement (Industrie et environnement)	(3.5 credits)	Mandatory
ENVI3DS/2	Diplôme d'études spécialisées en science et gestion de l'environnement (Agriculture et environnement)	(3.5 credits)	Mandatory
ENVI3DS/3	Diplôme d'études spécialisées en science et gestion de l'environnement (Gestion de l'espace et environnement)	(3.5 credits)	Mandatory
ENVI3DS/4	Diplôme d'études spécialisées en science et gestion de l'environnement (Administration publique, environnement)	(3.5 credits)	Mandatory
ENVI3DS/5	Diplôme d'études spécialisées en science et gestion de l'environnement (Santé et environnement)	(3.5 credits)	Mandatory
ENVI3DS/6	Diplôme d'études spécialisées en science et gestion de l'environnement (Science et environnement)	(3.5 credits)	Mandatory
GC22	Deuxième année du programme conduisant au grade d'ingénieur civil des constructions	(3.5 credits)	
GEOG22	Deuxième licence en sciences géographiques	(3 credits)	