

## Introduction course

Course title	Introduction course
Level / Semester	Master 2 Economics & Ecology / Semester 1
Credits	4.0 ECTS
Teaching Hours	30 hours

Economy students (registered at UT1) follow:

- Ecology and the Environment for Economists (15hrs)
- Introduction module part 2 (15hrs)

Ecology students (registered at UPS) follow:

- Introduction to Economics for Biologists (15hrs)
- Introduction module part 2 (15hrs)

## Ecology and the Environment for Economists

Instructors	Jorge Peña
Teaching Hours	15 hours

### Course description

Ecology is the scientific study of the interactions that determine the distribution and abundance of organisms. This course is an intensive introduction to some of the main theoretical concepts in ecology for students coming from an economics background. It will mainly focus on biotic interactions at the level of populations and communities, and will cover the following topics:

1. Introduction to ecology and evolution as scientific fields.
2. Intraspecific competition, density dependence, and population dynamics.
3. Interspecific competition.
4. Consumer-resource interactions.
5. Mutualisms.

The concepts will be introduced by means of mathematical models and their importance illustrated by case studies. The main goal is for economists to be sufficiently acquainted with some of the main concepts (and jargon) used in ecology to be able to interact with biologists in an efficient way, and to follow more advanced courses of the Master program.

### Course material

The primary texts for this course are the following textbooks on general ecology:

- Ecology: From Individuals to Ecosystems. Michael Begon, Colin R. Townsend, and John L. Harper. 4th Edition. Blackwell Publishing.
- Ecology: The Experimental Analysis of Distribution and Abundance. Charles J. Krebs. 6th Edition. Pearson Education Limited.
- Ecology. Michael L. Cain, William D. Bowman, and Sally D. Hacker. 3rd Edition. Sinauer Associates, Inc.

#### Introduction to Economics for biologists

Instructors	François Salanié
Teaching Hours	15 hours

#### **Teaching staff contacts – Coordonnées de l'équipe pédagogique :**

François Salanié (office MS216, building S) is available by appointment (francois.salanie@tse-fr.eu).

#### **Course's Objectives – Objectifs du cours :**

We have 15 hours to introduce biologists to the world of economic concepts, tools, and reasonings. In more details: Get a taste of economic approaches: individualism, decision-making, revealed preferences, incentives, equilibrium, optimum... Know the main definitions and results: utility, marginal rates or costs, surplus, markets, goods, welfare theorems, Pareto optima, externalities, ... Understand the methods of Public Economics: they allow to design and evaluate the effects of public policies.

#### **Practical information about the sessions – Modalités pratiques de gestion du cours :**

Be on time, participate, read a lot.

#### **Grading system – Modalités d'évaluation :**

Grading is purely based on participation.

#### **Bibliography/references – Bibliographie/références :**

The books below are cheap ... Buy some! Economic History of the World: Gregory Clark, A Farewell to Alms : a brief economic history of the world, Princeton University Press, 2007. History of economics: Robert Louis Heilbroner, Les grands économistes. Applying Modern Economics to Contemporary Issues : Bernard Salanié, L'économie sans tabou, Editions du Pommier, 2011. (the logic of economics applied to actual problems) (shameless support for a close relative) Roger Guesnerie, L'économie de marché. (more difficult) Jean Tirole, Économie du bien commun (the logic of economics applied to actual problems, once more.) Textbooks: because it clearly states definitions and results, I recommend R. Pyndick and D. Rubinfeld, Microeconomics (also available in French.) For environmental economics, the absolute reference is: C.D. Kolstad, Environmental Economics. ... and by order of difficulty, from 101 to PhD, from general to micro, and more and more theory-oriented : Greg Mankiw, Principles of Economics. (Available in French) Joseph E. Stiglitz and Carl E. Walsh, Economics. (Available in French, co-authored by Jean-Dominique Lafay) Hal R. Varian, Microeconomic Analysis. Hal R. Varian, Intermediate Micro-Economics. Andreu Mas-Colell, Michael D. Whinston, and Jerry R. Green, MicroEconomic Theory.

#### **Session planning – Planification des séances :**

There will be five sessions of three hours. Session 1: generalities, economics and the world. Sessions 2 to 4: Micro-Economics. Session 5: Public Economics and the Environment

#### Introduction course part 2

Instructors	Claire de Mazancourt (coordinator) and others
Teaching Hours	15 hours

For this second part of the course, all students will be together.

The aim of this part of the module is to embrace the interface between economics and ecology. It will use a mixture of lectures, group projects and individual projects.

**Presentations** from outside speakers, finishing students and researchers at the interface: End of Formation Day and other lectures.

**Problem-based learning** will be used to tackle a real question at the interface between economics and ecology as a group (2 full days in Moulis); students will present their work in an oral presentation in Toulouse.

**Personal project:** students will produce a 5 pages' personal project at the economics/ecology interface on a subject of their choice

#### REQUIREMENTS AND GRADING POLICY

Due to the interdisciplinary nature of this master, attendance at lectures will be required. The course grade will be determined by the performance of the student on assignments (individual or team-based assignments, and/or presentations), and/or a final exam. Due again to the pluri-disciplinary nature of this master, assignments and exams may be different for economics and for ecology students.

**Grading policy for this module:** The module will use a combination of several evaluation methods, including a written examination and oral presentations or written essays.