Ecosystem Management and Policies

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<tr>
<th>Course title - Intitulé du cours</th>
<th>Ecosystem Management and Policies</th>
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<td>Level / Semester - Niveau /semestre</td>
<td>M2 / S2</td>
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<tr>
<td>School - Composante</td>
<td>Ecole d'Economie de Toulouse</td>
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<tr>
<td>Teacher - Enseignant responsable</td>
<td>Marion DESQUILBET —François SALANIE</td>
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<tr>
<td>Other teacher(s) - Autre(s) enseignant(s)</td>
<td>Bård HARSTAD</td>
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<td>Other teacher(s) - Autre(s) enseignant(s)</td>
<td>Laurence HUC (toxicology)</td>
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<td>Other teacher(s) - Autre(s) enseignant(s)</td>
<td>Pierre LEBAILLY (epidemiology)</td>
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<td>Other teacher(s) - Autre(s) enseignant(s)</td>
<td>Denis COUVET</td>
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<td>Lecture Hours - Volume Horaire CM</td>
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<td>TP Hours - Volume horaire TP</td>
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<td>TA and/or TP Language - Langue des TD et/ou TP</td>
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**Teaching staff contacts - Coordonnées de l’équipe pédagogique:**

Marion DESQUILBET: MS 206. Meeting on appointment, please mail to marion.desquilbet@inra.fr

François SALANIE: MS216. Meeting on appointment, please mail to francois.salanie@inra.fr

**Course Objectives - Objectifs du cours :**

The rapid growth of human activities in the past fifty years has had profound effects on other species and on ecosystems, on which our own survival depends. Policies for environmental management are increasingly concerned by such biological and ecological issues, as witnessed for instance by new laws on biodiversity adopted by many countries (including France), or the debates on GMOs, pesticides and antibiotic resistance. This class aims at providing the students with a set of tools to analyze the numerous issues that arise when economic activities involve living beings. The goal is to identify the sources of externalities and discuss the appropriateness of alternative policy instruments in a number of qualitatively different settings, such as the management of forests, livestock, fisheries, and ecosystems, and the use of pesticides, medical drugs, and genetically modified crops. To this end, ecology models will be introduced into otherwise standard economics models, and examples of successful and unsuccessful policies will be discussed. At the end of the class, students should be able to gather resources and data on ecological/economic issues, to analyze them, and to provide advices about policy design.

**Prerequisites – Pré-requis :**

There are no prerequisites. We like rigor and enthusiasm.
Practical information about the sessions - Modalités pratiques de gestion du cours :

Be on time. Participate. Be active.

Grading system - Modalités d’évaluation :

20% of the grade is determined by attendance and participation; 50% of the grade will be determined by an individual term paper that aims at evaluating real policy in the light of the course material, and 30% by a final written exam.

1) Participation and attendance: be on time, participate.

2) For the term paper your mission is to:

- Choose a real regulatory policy (or law) related to an ecological or biological issue: for example, a policy against deforestation in Brazil, against over-fishing in Iceland, for protecting wetlands in Great Britain, for protecting ecosystems against invasive species, for regulating the use of genetically modified crops, for managing antibiotic prescription practices, etc...

- Write a report on this policy, as if you were the advisor in charge of evaluating the policy: first a summary of the situation, then a diagnosis of the policy, finally some suggestions for reform.

In particular, in the report you need to accurately identify the sources of economic and ecological/biological issues:

- for the economic issues this means identifying the externalities and the sources of these externalities: this should be quite straightforward since you are already familiar with this concept

for the ecological/biological issues this means describing in what ways there is mismanagement of the ecological/biological resource at hand (the forest, the stock of fish, an invaded ecosystem, the biodiversity in a given ecosystem, ...), and the reasons for this mismanagement; for instance, is it because property rights are not well defined? is it because information about the population is missing? is it because the reproductive season is disrupted by human activity? is it because the habitats are becoming too fragmented? etc.

The second part represents the element of this course which is meant to give you an edge in the competition for jobs in companies and organizations that evaluate economic and ecological consequences of human activities. Since this is likely the first time you are getting acquainted with ecological/biological issues, we will clearly not expect you to fully master these concepts. Instead, view it as an opportunity to combine insights about the economic consequences of human activities with some insights about their ecological/biological consequences. The report should refer to relevant theory and to any relevant data that you’ll find on the Internet. The report should include at least 10 pages written by you (this excludes for example tables or graphs that you reproduce from other sources), and a bibliography. You may also propose a modelling of the situation, but only if it is useful to your report.

3) The final exam: This will be a short exam (two hours), with mathematical problems that will resemble problems solved during the course.

Bibliography/references - Bibliographie/références:

**Session planning - Planification des séances:**

The class will take place from January 2019 to March 2019. The class is organized by theme:

François SALANIÉ, with participation of Bård HARSTAD (15h):

Environment and Biodiversity:


Fisheries:


Epidemiology and antibiotics:


Marion DESQUILBET, with participation of Denis COUVET, Laurence HUC and Pierre LEBAILLY (15h):

- Issues and challenges for sustainable food systems.
- The land sparing / land sharing debate: should we intensify agriculture to save land? How informative are sustainability standards on this issue? A multidisciplinary perspective in ecology, economics and science and technology studies

- Pesticide regulation: authorization procedures, taxation, effects of a ban on pesticides (the example of the European and French ban on neonicotinoids)

- The bio-economics of chemical versus biological or agroecological pest control

- Pesticide resistance, genetically modified crops

- The challenge of measuring the impacts of pesticides on human health and the environment: a toxicological and epidemiological perspective


