Ecology

Course title – Intitulé du cours	Ecology
Level / Semester – Niveau /semestre	M2/ Semester 1
School – Composante	Ecole d'Economie de Toulouse
Teacher – Enseignant responsable	Jérôme Chave (EDB)
Other teacher(s) – Autre(s) enseignant(s)	Julien Cucherousset (EDB)
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Lecture Hours – Volume Horaire CM	10h CM
TA Hours – Volume horaire TD	10h TD
TP Hours – Volume horaire TP	
Course Language – Langue du cours	English
TA and/or TP Language – Langue des TD et/ou TP	

Teaching staff contacts – Coordonnées de l'équipe pédagogique :

Jérôme Chave (EDB)

Julien Cucherousset (EDB)

Course Objectives – Objectifs du cours :

This course will cover a broad array of ecological theory in order to understand ecology and evolution from small to large scale.

Grading system – Modalités d'évaluation :

Due to the pluri-disciplinary 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.

Session planning – Planification des séances

Course 1 History of ecological concepts Jérôme Chave 1 h CM, 2h TD

Nutrient depletion, ecological succession, management of hazards, global ecology, law and environmental challenges

Course 2 Niche theory Jérôme Chave 1 h CM, 2h TD

Simple models of interacting species, the niche concept, fundamental versus realized niches, models of species distribution and applications

Course 3 Food webs and stable isotope ecology Julien Cucherousset 1 h CM, 2h TD

Food web ecology, stable isotope analyses (1h lecture)

Mixing models, contribution of allochthonous resources (2h practicals)

Course 4 Biological invasions and their ecological impacts Julien Cucherousset 1 h CM, 2h TD

Profiling invaders, ecological impacts (1h lecture)

Impacts across levels of biological organisations (2h article discussion)

Course 5 Biodiversity theory Jérôme Chave 1 h CM, 2h TD

Why are there so many species ?

Spatial processes, Janzen-Connell effect, neutral theory of biodiversity

Course 6 From individuals to ecosystems and vice-versa Julien Cucherousset 1 h CM, 2h TD

Niche construction theory, individual specialisation, Eco-evolutionary dynamics

Intraspecific variability in ecosystem ecology (2h article discussion)

Course 7 Biosphere Jérôme Chave 1 h CM, 2h TD

Biosphere and global change, modelling fluxes, history of the biosphere

Distance learning – *Enseignement à distance :*

Distance learning can be provided when necessary by implementing:

- *Interactive virtual classrooms*
- *Recorded lectures (videos)*
- *MCQ tests and other online exercises / assignments*
- *Remote (online) tutorials (classes)*
- *Chatrooms*

En cas de nécessité, un enseignement à distance sera assuré en mobilisant:

- *Classe en ligne interactive*
- *Vidéo enregistrée de la présentation du matériel pédagogique*
- *QCM et exercices en ligne*
- *TP/TD à distance*
- *Forum...*