

Specialisation semester Agroecology

30 ECTS from September to December



S9_AGROECOS	MA2 / S3	Nombre d'heures-élève						
MSc CGE in Agroecology *	FERRER Aurélie	Cours	TD	TP	FT	Visites	WPP	Evaluation
ECTS : 30		105.50 h	30.00 h		95.00 h	54.00 h	162.00 h	5.00 h

PROGRAMME :

Learn project management and expand on application of agroecological science in real-world situations.

The students will learn to put together theoretical knowledge and past experiences to work in farming and food systems.

Courses at ISARA, France will start with a field trip to a selected region in France. Students will visit different stakeholders to analyse specific question on landscape and agricultural management such as constraints and potentials of the prevailing cropping and livestock production systems, or landscape and biodiversity management systems. In the second module, students will gain applied knowledge on different agroecological cropping practices such as conservation tillage, direct seeding, intercropping, cover crops, and biological control.

The third module deals with the world ecosystems and their prevailing agricultural systems, but also with influencing factors such as economy, politics, land tenure or social issues. Students will learn which resource conservation techniques are feasible in the different agroecosystems, but also what role indigenous knowledge of farmers plays in traditional and modern agriculture.

The fourth module deals with the management of agroecosystems and implication from policies and nature conservation. Topics dealt with are for example agri-environmental measures, international conventions impacting agriculture, protected areas and agriculture, and ecological corridors in agricultural landscapes.

In the project management module, students will deal with different real -life projects. In groups they will analyse a demand from an external client or a research project during the whole semester. The objectives are to use different methodological and project management tools, and to apply disciplinary knowledge acquired in previous courses.

S9_AGROECOS -1	MA2 / S3	Nombre d'heures-élève						
Module 1: Agroecology and territories *	FERRER Aurélie	Cours	TD	TP	FT	Visites	WPP	Evaluation
ECTS : 4		17.00 h	10.00 h		32.00 h	35.00 h	6.50 h	1.00 h

ACQUIS DE L'APPRENTISSAGE :

To discover and analyse an agricultural region and the constraints and potentials of the prevailing cropping and livestock production systems, the landscape management system as well as other economic activities such as agro-tourism.

To meet and interact with key stakeholders.

PROGRAMME :

Students will start this semester with a one week excursion and group studies in a selected region in France (e.g. Luberon) characterised by different environmental and agricultural production issues. Before this, they will get introductory lectures to the area and will be prepared with methodological tools (landscape analysis, agricultural production systems analysis, interviews) to carry out a group work. At the beginning of the excursion they will meet different stakeholders to understand the agricultural, economic and environmental characteristics of this area. After this, they will visit and inquire in different groups other stakeholder to analyse specific question such as constraints and potentials of the prevailing cropping and livestock production systems or landscape management system. Other topics will be the role of rural tourism, potential conflict issues such as nature conservation or water contamination, and rural development policy. A general feedback will be given by the groups of students in presenting their findings and analyses and discussed with the teaching staff.

MODALITES PEDAGOGIQUES :

Classroom lectures

Literature study

Tutorials/Instruction

Excursion (one week)

Field work (meetings and interviews with stakeholder during excursion and transect work)

PREREQUIS :

Basic knowledge of landscape management and cropping and livestock systems.

EVALUATION :

Libellé épreuve	Responsable	Nature	Forme	Date / Période	Durée	Coef.
Module 1: Luberon territory group work presentation	FERRER Aurélie	Orale	Présentation	End of module 1	1.00 h	50.00 %
Module 1: Report on Luberon territory	FERRER Aurélie	Rapport	Rapport	End of module 1	1.00 h	50.00 %

DETAIL DES EVALUATIONS :

- End of module 1 : Group work - Written document - 2/4 of the final grade

- End of module 1 : Group work - Oral presentation - 1/4 (Group) + 1/4 (Individual) of the final grade

S9_AGROECOS -2	MA2 / S3	Nombre d'heures-élève						
Module 2: Agroecology in practice *	FERRER Aurélie	Cours	TD	TP	FT	Visites	WPP	Evaluation
ECTS : 6		35.00 h	6.00 h		12.00 h	8.00 h	47.00 h	1.00 h

ACQUIS DE L'APPRENTISSAGE :

To learn about different agroecological cropping practices.

To study soil related ecosystem services and biological pest control service.

To perform a diagnosis for a farm design in link with the potential of conservation biological control.

To carry out a profound literature review on a selected topic.

PROGRAMME :

This course will deal with different agroecological practices in cropping systems. As most of these practices are based on valorizing and optimizing ecosystem services, it will begin with an introduction to these services. Then, various lectures will deal more specifically on how ecosystem services regulate and support soil biota as well as on non-soil functional species groups including insects or plants. To deepen the knowledge gained in these lectures, a field visit and fieldwork will be carried out to discuss farm design and the assessment of existing biodiversity in link with the potential for biological control. The field experience will be linked to different lectures about agroecological cropping practices such as intercropping, sustainable crop rotations and biological pest control. Students will understand the role of agroecological cropping practices and learn about state of the art materials and agroecological innovations. This module is based on lectures, fieldwork and a seminar. For the seminar, students will conduct a literature study on topics related to the module and present their findings to colleagues and professors.

MODALITES PEDAGOGIQUES :

Classroom lectures

Literature study

Tutorials/Instruction

Field work

Excursion

PREREQUIS :

Basic knowledge of cropping practices.

EVALUATION :

Libellé épreuve	Responsable	Nature	Forme	Date / Période	Durée	Coef.
Literature review report		Rapport	Rapport	End of module 2	--	60.00 %
Module 2: Literature review presentation		Orale	Oral	End of module 2	1.00 h	40.00 %

DETAIL DES EVALUATIONS :

End of module 2 : Written document (Individual) and oral presentation (individual) of final grade

S9_AGROECOS-3	MA2 / S3	Nombre d'heures-élève						
Module 3: World agroecosystems *	WEZEL Alexander	Cours	TD	TP	FT	Visites	WPP	Evaluation
ECTS : 6		20.00 h	11.00 h		15.00 h	3.00 h	28.00 h	1.00 h

ACQUIS DE L'APPRENTISSAGE :

To learn about world's agroecosystems and their prevailing agricultural systems.

To make a comparative analysis about major constraints of these systems:

To learn to write an abstract.

To present an agricultural system and discuss it with other students.

PROGRAMME :

In this module, students will learn in lectures and in a seminar the basic characteristics of the world's agroecosystems (climate, soils, vegetation) and their prevailing agricultural systems. This includes the presentation of different cropping and livestock husbandry systems and their interactions in the Tropics and Subtropics, but also in Temperate and Mediterranean Europe (e.g. agropastoral land use in the Sahel, shifting cultivation and tropical forest use, cropping systems in France). In addition a critical analysis of influencing factors such as economy, politics, land tenure or social issues will also be provided. More in-depth studies on different agronomic innovations such as agroforestry or intercropping will be additionally presented. Finally, students will learn which resource conservation techniques are feasible in the different agroecosystems, but also what role indigenous knowledge of farmers plays in traditional and modern agriculture.

MODALITES PEDAGOGIQUES :

Classroom lectures

Literature study

Tutorials/Instruction

Seminar

PREREQUIS :

Basic knowledge about the functioning of cropping and livestock systems.

Basic knowledge about ecozones (location, climate natural vegetation).

EVALUATION :

Libellé épreuve	Responsable	Nature	Forme	Date / Période	Durée	Coef.
Module 3: World agroecosystems - Presentation and questions and oral exam (15 min')		Travail	Oral	Towards end of	1.00 h	100.00 %

DETAIL DES EVALUATIONS :

- Towards end of module 3 : Oral seminar presentation + written abstract (Individual) 3/5 of final grade

- End of module 3 : Oral exam (Individual) 2/5 of final grade

S9_AGROECOS -4	MA2 / S3	Nombre d'heures-élève						
Module 4: Policies and agroecosystem management *	MOURATIADOU Ioanna	Cours	TD	TP	FT	Visites	WPP	Evaluation
ECTS : 6		29.50 h	3.00 h		14.00 h		19.00 h	1.00 h

ACQUIS DE L'APPRENTISSAGE :

To get familiar with different types of policies and regulations that are important for the management of agroecosystems and learn how they are used to influence management and allow sustainability transitions.

To prepare and present a poster about a selected topic.

To debate with stakeholders on selected topics.

PROGRAMME :

The management of agroecosystems is central for ensuring sustainable agriculture that addresses simultaneous demands to enhance food security, productivity, biodiversity and the provision of ecosystem services. This module will present and analyse the use and implications of policies and nature conservation measures aimed at sustainable agroecosystem management. It will start with an overview of the main current agricultural policies in Europe and their impact on the management of agroecosystems, with a special focus on agro-environmental measures and eco-schemes. Comparative insights on EU and USA policies will also be provided. A second topic will focus on lectures and discussions on biodiversity and agrobiodiversity and its management in agroecosystems. In a third step, different options for global agroecosystems/environmental management such as international conventions (e.g. Convention on Biological Diversity, Ramsar-Convention, Convention to Combat Desertification) and international and national attempts for nature and resource conservation will be presented. In addition, courses and an exercise on multi-variate evaluation of agroecosystems will be provided. Finally, students will have to use the acquired knowledge to a) develop a topic related to agroecosystems management and present it in a poster session to the other students and b) actively debate taking a stakeholder role with other students-stakeholders on specified topics related to agroecosystem management.

MODALITES PEDAGOGIQUES :

Classroom lectures
Literature study
Tutorials/Instruction
Poster Seminar
Debating

PREREQUIS :

Basic knowledge of agricultural policies, agri-environmental measures, nature conservation and ecology.

EVALUATION :

Libellé épreuve	Responsable	Nature	Forme	Date / Période	Durée	Coef.
Module 4: Policies and agroecosystem management - Poster presentation and questions (20 min') and oral exams in the form of debate (~30 min')		Examen	Oral	Towards end of	1.00 h	100.00 %

DETAIL DES EVALUATIONS :

- Towards end of module 4 : Poster presentation + Poster (individual) 3/6
- End of module 4 : Oral exams in the form of a debate (individual) 3/6

S9_AGROECOS -5	MA2 / S3	Nombre d'heures-élève						
Module 5: Group project management *	WEZEL Alexander	Cours	TD	TP	FT	Visites	WPP	Evaluation
ECTS : 8		4.00 h			22.00 h	8.00 h	61.50 h	1.00 h

ACQUIS DE L'APPRENTISSAGE :

To deal with a topic in a real-life project and to respond to the demands of an external client.

To organise a group work

To self-reflect on student's on role and work in the group work.

PROGRAMME :

In this module, students will deal with different real-life projects. In groups they will analyse a demand from an external client (technical institutes, regional agricultural departments, research centres, associations, private companies) during the whole third semester. The objectives are to use different methodological and project management tools (defining leadership, time schedule, deliverables), and to apply disciplinary knowledge acquired in previous courses (semester 1 and 2). In addition a self-evaluation process of the students is implemented (contribution to the team work, assessment of the function in the group). The self-evaluation can be carried out either during an interview with the module coordinator or with a written document. The principle group work will be a literature review, field work or surveys in order to qualitatively and quantitatively analyse collected data, and discussion of their findings in group presentations with the external clients.

MODALITES PEDAGOGIQUES :

Group project

Literature study

Practical Training

Field work (depending on the topic of the group project)

Visit (field or institution)

Tutorials/Instruction

PREREQUIS :

No particular pre-requisites as topics of group work vary considerably.

EVALUATION :

Libellé épreuve	Responsable	Nature	Forme	Date / Période	Durée	Coef.
Module 5: Group project management - Presentation and questions		Rapport	Présentation	End of semester	1.00 h	100.00 %

DETAIL DES EVALUATIONS :

Group work :

- End of semester : Written document (group) 4/8

- End of semester : Oral presentation (group) 2/8

- End of semester : Oral presentation (individual) 2/8