

SUMMER PROGRAMME

Sustainable Agriculture and Food Systems

9 ECTS *

5 weeks from beginning of June – Mid July

ISARA-Lyon is a specialized university offering courses on Agriculture, Food and Environmental Sciences. Our summer school is open to international undergraduates with a Science or Humanities major from beginning of June to mid-July. It is a comprehensive program of French language and culture lessons and scientific courses on Agroecology and Sustainable Agriculture in English, excursions, visits and hands-on learning opportunities.



Make the world your classroom. Perfect your intercultural skills while savoring the beauty Lyon and its surroundings has to offer. Student accommodation as well as ISARA-Lyon, are in the heart of town, enabling easy access and multiple opportunities to discover different facets of the city.

France's strong agrarian tradition together with its appreciation of fine food and wine makes it an ideal destination to learn how French and European agriculture is managed dealing with the many challenges facing the preservation of natural resources and sustainable food systems.

More information on our [website](#)
or you could contact the coordinator: sverneret@isara.fr

Total of ECTS	Contact hours						Project work
	Lectures	Tutorials	Practicals	Field trips / Excursions	Supervised work	Evaluation	Project work
ECTS : 9	39.50 h	-	8.00 h	43.00 h	19 h	6.50 h	15.00 h

Personal work = Contact hours x2

Detailed courses and ECTS

Sustainable Agriculture and Food System (ISARA-Lyon) *	Aurélie FERRER	Lectures	Tutorials	Practicals	Field Trips	Supervised work	Evaluation	Project work
ECTS : 6		12.5h	-	8h	35h	19h	0.50h	15h

OBJECTIVE :

The programme aims to provide students with a comprehensive overview of agroecology and sustainable food systems. It presents:

- The different definitions of agroecology across the world (movement, science, practices)
- The different agroecological practices and their implementation in today's agriculture
- The stakes and challenges of the implementation of agroecological practices in various contexts and on various territories (large scale field crops, areas of dairy production, mountains area...)
- The different conditions (agronomic, zootechnical and socio-economic) necessary to achieve good agroecological performance in the production systems and the consequent multidisciplinary approach needed to make production systems enter into an agroecological transition.

Then the link is made between food production and supply chain organization as well as between production processes/modes and product quality. The program presents the sustainable food systems through the study of local and short food supply chains, their role in the agroecological transition of the production systems and their link with territory. The question of local, national and European policies concerning agroecology and food systems is also addressed.

PROGRAMME

GENERAL INTRODUCTION AND PRESENTATION OF GUIDELINES (1 h lecture) - Aurélie Ferrer

This introductory session presents the objectives and organisation of the summer school and the evaluation process.

INTRODUCTION TO AGROECOLOGY (1 h lecture) -Alexander Wezel

Students are provided with an overview of the different definitions, interpretations, and approaches of agroecology existing today. More specifically, students discuss the scientific approaches and the situation of agroecology in their home countries. In addition, an overview of agroecological practices is given and some country cases presented to better understand the history and evolution of agroecology in the world.

AGROECOLOGICAL PRACTICES FOR PEST CONTROL (0.5h lecture + 7h field trip +1h practicals) - Aurélie Ferrer



Pest management is a crucial challenge for sustainable agriculture. Based on agroecological management principles, several practices aim to improve crop pest control and could be combined, e.g. crop rotation, cultivar mixing, use of natural pesticides, push pull systems, biological control with conservation of pest natural enemies.

Biological control practices produce promising results especially in horticultural farms. The goal of the lecture and the field trip is to discover different agroecological infrastructures (e.g. landscape elements, "natural enemies' production units") and practices implemented by a market gardener on his farm to favour local population of natural enemies to protect his crops from pests. An insect field sampling at the end of the visit enables students to better assess insect diversity on the farm, and especially the diversity in natural enemies. This field trip is also an opportunity for students to meet and

discuss with the farmer and to share and compare their experiences and knowledge of biological control practices in different parts of the world.

FISH POND SYSTEMS IN AGRICULTURAL LANDSCAPSES (3hpracticals+ 8h field trip)- Benoit Sarrazin - Joël Robin

Fish pond systems, their characteristics and surrounding agricultural systems are illustrated through a case study taken from the Dombes region, close to Lyon. This didactic activity includes two different parts:

- first, students attend a preparatory lecture. They learn to use spatial analysis of land use data generated by remote sensing in a geographical information system (GIS) to assess ecological risks for fish ponds in agricultural landscapes. They use spatial analyses to locate pond exposed to agricultural nonpoint source pollution

- then students and professors go on a field trip in the Dombes area. The influence of pond fisheries and agricultural practices on biodiversity as well as methods of biodiversity evaluation (through the presence of aquatic plants, dragonflies and amphibians) are investigated during this visit.

This course also involves a socio-economic approach with the analysis of the technical and socio-economic characteristics of farms and the study of local stakeholders and their implication in the conservation and management of pond biodiversity.

AGROECOLOGY IN LIVESTOCK FARMING SYSTEM: case study in mountain area in France (2 days field trip+ 1h lecture + 1h practicals) - Emilie Ollion

This activity addresses the crucial question: how can agroecology be implemented in livestock farming system? To discover the principles which shape agroecological farming system, students visit farms and meet different stakeholders of the environment in the breathtaking landscape of French mountains. This two-day tour gives a large overview on the diversity of principles and practices implemented in different types of farming systems: dairy cows, goat or sheep farming, beekeepers, poultry or pig production. The visits are organized to examine different farming practices contributing to the sustainability of livestock farming system in this area: feeding system, animal health and welfare management, recycling nutrients. Furthermore, discussions with stakeholders and managers of the surroundings landscapes (e.g. natural parks) bring more insight on the costs and benefits of maintaining livestock farming activities in mountains areas: biodiversity preservation, cohabitation with wild life, tourism, inhabitants, overgrowing control, maintaining territory vitality, and the beauty of the landscape are at stake.

SOCIOLOGICAL & ECONOMIC ADAPTATION AT DIFFERENT SCALES

Going organic in mountains: barriers and motivations, a sociological approach -3h lecture + 4h field trip
- Jacques Godet

This lecture aims at presenting the challenges faced by the producers engaged in environmentally low impact production systems, regarding their own knowledge and the system governance (stakeholders, policies, outlets...). Organic farming is an alternative production way actually widespread around Lyon. Lyon territory is well-known in France as a leading area in organic farming, but this rise of organic farming occurred mainly in the lowlands despite most of the Rhone-Alps region is mountainous. It is therefore relevant to enhance conversion to organic farming in these highlands, not only for their natural and ecological assets but also because there is a strong demand from the neighbouring towns and resorts.

This lecture is based on the results of an action-research project that investigated the profile of the applicants to organic farming conversion among local farmers in 3 mountainous areas, the conditions needed for them to convert and why so few started this conversion process till now.

SOCIOLOGICAL & ECONOMIC ADAPTATION AT DIFFERENT SCALES

Alternative food systems -3h lecture + 3h practicals - Céline Michaud

Food systems are currently evolving. Despite the dominance of the global agro-industrial food system, alternative forms of production, processing, distribution and consumption are spreading. This course focuses on alternative food systems with a particular emphasis on some French cases. Short food supply chains, local food, community supported agriculture and geographical indications are presented with sociological and economical concepts. The course allows students to put in perspective the various field trips of the summer school and it provides them with an analytic framework for the observations made during the field trips. Students have to analyse their visits, to report their observations and to discuss alternative food systems in class.

NATURAL STARTERS IN FOOD TECHNOLOGY/ BETWEEN PAST AND FUTURE.

3h lecture - Yann Demarigny

Traditional products, manufactured through specific know-how and processes, participate strongly to the identity of a territory and its attractiveness and thus contribute to maintain dynamic territorial economies. France displays a large variety of traditional, often “homemade” or farm produced cheeses. It is therefore interesting to understand the processes that make these products so specific. Starters used to make cheeses include a great deal of microorganisms, in particular lactic acid bacteria. These bacteria are responsible of the development of aroma compounds. Starters can be obtained in two ways: by adding of selected strains in a sterilized medium, or via the culture of the whey coming from the cheese making of the day to seed the milk of the day after. This type of starter is called “natural whey starter” (NWS). Day by day, NWS is enriched by the addition of wild bacteria originating from raw milk, from the environment and from the previous cheese making. The use of these complex ecosystems requires know-how which contributes to bring specific features to the cheeses: typical sensory characteristics, but also antimicrobial actions against spoiling and poisonous microbes.

SUPERVISED WORK (19h) and PROJECT WORK (15h)

Each student chooses a topic related to agroecology and/or sustainable food system and carries out throughout the summer school a personal work on that topic. Helped by a supervisor (usually a professor specialized on the topic) the student has to search for literature on the topic and to take the opportunities of the different lectures and visits to deepen his/her knowledge and thoughts on the topic. At the end, each student writes a report (a mini-review) and orally presents his/her work to other students and instructors during a seminar. This seminar provides an opportunity for students to share knowledge, discover a large set of topics related to agroecology and food systems and discuss collected information.

TEACHING METHODS :

Priority is given to an inductive approach to arouse curiosity and encourage critical thinking. The pedagogic strategy is based on the constant combination of theoretical inputs and practical application with case studies and field trips. Lectures are given by researchers specialized on the topic who are therefore particularly able to provide students with up to date information. Lectures are designed to either introduce or consolidate knowledge. Lectures are explicitly linked to different visits and field trips to favour student appropriation of the knowledge and stimulate personal thinking.

PREREQUISITES:

Student must have a good background in ecology, agronomy and/or sociology

EVALUATIONS DETAILS:

Evaluation is performed through the supervised project work. The scheduled time allocated to this personal work enables student to carry out this project and to produce a written report and an oral defence. The written report should be between 5 and 7 pages long. The oral presentation lasts 15 minutes followed by 15 minutes of questions from the audience (students and teachers).

French language and culture (IPL)	Sigolène VERNERET	Lectures and Tutorials	Visits - Excursions	Evaluation
ECTS : 3		27.00 h	8.00 h	6.00 h

OBJECTIVE :

- improve your command of French as foreign language (speaking, listening and writing skills)
- understand French culture and share differences, similarities your own culture
- discover Rhône-Alps territories, economic and cultural activities

PROGRAMME :

- Classes of French as foreign language.

Students will be divided into 3 groups according to their knowledge in French:

Beginner group:

Students will learn basic knowledge that will help them in their daily life in Lyon:

How to introduce themselves, how to locate them, give an appointment, go to the market, understand a menu in a restaurant...

All sessions will have clear and precise language objectives adapted to the theme.

Some examples: verbs and tenses, negative form, adjectives, articles, vocabulary adapted to the theme, numbers, name of week days, months, foods...

Intermediary group:

Usually students have already good knowledge in French but sometimes they are lacking of practices.

This prevents them from using as much as they can their knowledge. This course will help them to feel more comfortable, deepening and enlarging their knowledge already existing.

Work will be writing and speaking in order to improve both skills.

According to the number of students, their knowledge, background but also origin... themes will be defined. On each theme, the French teacher will be able to work on vocabulary, grammar, syntax, cultural aspect (writing and speaking skills).

Since students in this group have already good knowledge, the priority will be given to develop communication on their personal point of view.

Not to mention that the group will be composed of students from different nationalities, it will be then interesting to share themes with an intercultural vision and compare it to the French culture.

Advanced group:

Students in this group have a very good command of French (speaking, understanding and writing).

They have no difficulties to understand what is said and to express themselves. The aim of this course is to help them to go deeper and perfect their knowledge. The objective is also to focus on the need of each student and help him to improve on a particular need.

As for the intermediary group, the French teacher will develop themes according to the dynamic of the group and will be able to work on vocabulary, grammar, syntax, cultural aspect (writing and speaking skills).

Along with the French courses, you will be visiting various places in the Rhône-Alps region, such as:

- o Lyon, UNESCO World Heritage, Pérouges Medieval City, Annecy...
- o Vineyards
- o Chocolate factory
- o Cheese makers in the Alps
- o Regional companies and industries: textile industries, CERN (European Centre for Nuclear Research), etc.

TEACHING METHODS :

- Lectures
- Visits

EVALUATIONS DETAILS:

- Continuous evaluation and final exam

