

SUMMER PROGRAMME

Agroecology & Sustainable Agriculture and Food Systems

Some innovative solutions for ecological and climate issues

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	40 h	-	8.00 h	43.00 h	19 h	4.50 h	15.00 h

Personal work = Contact hours x2

* ECTS= European Credit Transfer System

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		13h	-	8h	35h	19h	0.50h	15h

OBJECTIVE:

The programme aims to provide students with a comprehensive overview of agroecology and sustainable food systems, innovative solutions for ecological and climate issues.

. 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 (30 min lecture) -Aurélie Ferrer

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

INTRODUCTION TO AGROECOLOGY (1h30 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. Students will also have the possibility to visit a farm shop which foster a circular and solidarity economy for local farmers.

FISH POND SYSTEMS IN AGRICULTURAL LANDSCAPES (5h practicals + 8h field trip + 1h lecture)
- Benoit Sarrazin - Joël Robin – Soraya Rouifed

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. During the field trip, student study two different sites by using an analysis grid presented and explained prior the trip, in a short lecture. After the field trip, students are invited to discuss their analysis, and to make the link between their observations and ecological processes, biodiversity management and fish production.

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. This enables to understand also a circular and solidarity economy.

AGROECOLOGY IN LIVESTOCK FARMING SYSTEM: alternative practices and marketing strategies, a case study in mountain area in France (2-day field trip+ 2h lecture + 1h practicals) - Anais OSTERGAARD and Madeline KOCZURA

This activity addresses the crucial question: how can agroecology be implemented in livestock farming system? To discover principles which shape agroecological livestock farming system, students visit farms and meet different stakeholders of the territory in the breathtaking landscapes of French mountains. This two-day tour gives a large overview on the diversity of principles and practices implemented in different types of animal production systems: dairy cows, pastoral sheep, mixed farming systems, outdoor pig production. 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, nutrient recycling. Furthermore, discussions will also address the crucial role of value chain organization in the development of sustainable livestock production systems: on-farm transformation, alternative distribution channels, small-scale slaughtering, re-localization of input supply chains, etc. Finally, the role of livestock farming activities in territorial vitality will be addressed: wildlife and biodiversity conservation, landscape maintenance, prevention of shrub encroachment, economic contribution (employment, tourism, etc.).

FEEDING AN URBAN WORLD: CHANGES AND PERSPECTIVES FOR MORE SUSTAINABLE FOOD SYSTEMS - 3h lecture – Caroline BRAND

Feeding the urban societies? Food and cities are two subjects today at the heart of a bundle relations, tensions and contradictions. Paradoxically, they were not apprehended and managed jointly any longer. Vital issue for our urban era, this session aims at improving your understanding of urban food

systems. Based on a geographical perspective, we will see how the relations between food and cities have evolved since the 19th century and how they get renewed today in the context of a « new food equation » that our societies are facing (Morgan & Sonnino, 2010). This will lead to speak about how to access food and the link with circular and solidarity economy. We will also develop your understanding of the political landscape of the food system regulation. In particular, we will see how an urban food governance is recently emerging. How can local governments tackle the issue of more sustainable food systems?

URBAN FARMING - 2h lecture + visit in an urban farm – Perrine VANDENBROUCKE

As 80% of the world's population is expected to be living in urban areas by 2050, there is an urgent need to address how cities deal with service provision and city planning for healthy lifestyles (FAO). Urban agriculture, defined as *the practice of cultivating, processing and distributing food in or around a village, town, or city*, is identified as a key element for food security and to deal with different social, environmental challenges faced by cities nowadays. By visiting an urban farm, we will question technical, social and economic aspects of urban farming.

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.

INTERCULTURAL SESSION (3h) Mairi Beaton

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 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	4.00 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 2 groups according to their knowledge in French:

Beginner group:

Concept of class:

Sessions will allow students to work primarily on oral French while always being sure to keep a written record of content learned in order to review, memorize, and apply concepts.

Subjects covered will include the following:

- Presenting yourself: identity, nationality, age (numbers), place of residence
- Talking about your family: the members of the family – some professions
- Placing yourself in time and space: days, months – adverbs to indicate place – understanding directions – city and transportation vocabulary
- Food: meals – vocabulary about food and the different specialized shops
- The body: physical description – colors – basic health vocabulary – talking about something that hurts, etc. – a few elements about personality
- Various extracurricular activities – personal taste – sports, music...

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...

At the end of the class, each student should be able to produce a written document in which she or he introduces herself or himself as completely as possible, using all the elements seen in the previous classes.

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.

Syllabus (depending on the level and the interests of students, taking into account the progress of the group as a whole):

- The city of Lyon / comparison with students' home towns – relation to the city tour done at the beginning of the program
- French eating habits, French gastronomy, going to a restaurant / comparison with the countries and regions that students come from – relation to each student's personal experience
- Traveling: work focusing on students' weekend plans: transportation, lodging, tourist sites
- Observation work during the weekend will include collecting photos, audio clips and other documents. These will be used for a class presentation about a tourist site, which may serve as the oral component of the final evaluation
- Study a literary text by a Francophone author and a song
- A lesson on wine in relation with the visit to the winery: economic and sanitary aspects, representations and cultural aspects
- Higher education in France: presentation of the different programs, fields of study, degrees and institutions. Focus on Lyon:
 - How to prepare to study in France
 - Student lodging
 - Health
 - Activities outside of school: associations
 - Access to culture
- Partial in-class preparation of the oral presentation for the final evaluation
- Grammar review (depending on the needs of the group)

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
- o CERN (European Centre for Nuclear Research), etc.

TEACHING METHODS:

- Lectures
- Visits

EVALUATIONS DETAILS:

- Continuous evaluation and final exam



Some videos :

The syllabus in images:



Testimonies from American and Canadian students:

