

SPECIALIZATION SEMESTER

VITICULTURE, TERRITORIES & AGROECOLOGY

30 ECTS *

From September to December



F. Celette

This specialization aims to provide to students knowledge, abilities and know-how to accompany and support changes in viticulture and more generally in agriculture toward a more sustainable and efficient production.

The idea is to give them the opportunity to learn project management and expand on application of agroecological science in real-world situation. It means that students will try to better grasp the complexities of wine industry in French but also international changing context. This semester also make them understand the strong link between wine production activity and territories within which it is drafted. Finally, this semester gives elements to the student to understand the different possible strategies of production and valorization of wines at different scales.

Courses at ISARA-Lyon, France will start with a one week excursion and group work in a selected region in France associated with wine production. The students will conduct an analysis of this region and provide further development options for this region, highlighting the multiple facets on display (agricultural production, environment, food systems, and wine production). The students will meet different stakeholders to understand the agricultural, economic and environmental characteristics of this area (e.g. a natural park manager, farmers, a wine cooperative president). This module aims to develop the students' awareness

in specific environmental and agricultural (including winegrowing production) issues that are intertwined in a given region. Some of these issues will be tackled again later in the subsequent modules of the semester.

In the second module, students will develop their awareness about sustainable viticulture issues and agroecology at a field scale. It will deal with agroecological practices and how they can support transition to sustainable agricultural (including winegrowing) production. Students will have the opportunity to grasp the link between biodiversity and ecosystem services in agriculture. Conceiving agroecological wine production systems is a way to reduce the use of inputs and obtain resilient systems able to face global changes affecting agricultural and wine growing activity (i.e. climate change, resource scarcity, evolution of agricultural market, consumers' expectations...). This module is built on lectures including several real situations observations and experiments and visits.

The third module deals with the link between viticulture, territories and environmental issues and to put into practice methods and tools usually used to assess and manage them (e.g. GIS, indicators, multicriteria analysis). Several approaches are proposed to students to understand how wines could be the expression of a terroir, but also of winemaking practices and how grapevine could be managed in this perspective. The impact of viticulture on the Environment (water, biodiversity...) and how to prevent it will be also assessed at the territory scale.

The fourth module introduces the wine industry and its main stakes at the French and international scales. Students will learn the economy and the market are regulated and segmented and how winegrowers and firms may develop different strategies to valorize their wines between heritage and innovation.

In the project management module (module 5), 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.

Total of ECTS	Contact hours						Project work
	Lectures	Tutorials	Practicals	Field trips	Supervised work	Evaluation	Project work
ECTS : 30	115.50 h	31.50 h	-	67.50 h	97.00 h	28.50 h	135.50 h

Personal work = Contact hours x2

* ECTS= European Credit Transfer System

Detailed courses and ECTS

Module 1: Agriculture and landscape management in a particular agricultural region *	Marion CASAGRANDE	Lectures	Tutorials	Practicals	Field trips	Supervised work	Evaluation	Project work
ECTS : 4		20.00 h	7.00 h	-	35.00 h	27.00 h	7.00 h	16.00 h

OBJECTIVE :

This first module is an introduction to the semester. Students will start this semester with a one week excursion and group work in a selected region in France associated with wine production (Luberon).

This module aims to develop the students awareness in specific environmental and agricultural (including winegrowing production) issues that are intertwined in a given region. Some of these issues will be tackled again later in the subsequent modules of the semester.

PROGRAMME :

Students will start this semester with a one week excursion and group work in a selected region in France with a strong tradition in wine production (Luberon).

The students will conduct an analysis of the Luberon region and provide further development options for this region, highlighting the multiple facets on display (agricultural production, environment, food systems, wine production). Introductory lectures presenting the area will be given to prepare for the field trip and thematic group work will be carried out during the week away (e.g. "Terroir" products, land use in Luberon, wine tourism, wine production and water quality, etc.). Groups will have to prepare for this and their group work by (i) reading literature dealing with the region and (ii) defining methods to be applied during the excursion (landscape analysis, agricultural production systems analysis, interviews).

During the field trip the students will meet several stakeholders to understand the agricultural, economic and environmental characteristics of this area (e.g. a natural park manager, farmers, a wine cooperative president). Each group will also visit and/or interview other stakeholders, previously identified during preparation time, to analyze specific questions related to their thematic group work. Other topics will be addressed during the excursion such as the role of rural tourism, potential conflict issues such as nature conservation or water contamination, and rural development policies.

PREREQUISITES :

Basic knowledge of landscape management, agronomy, viticulture, crop production and husbandry.

TEACHING METHODS :

Classroom lectures

Literature study

Group and personal work

Field trips (one week)

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

EVALUATIONS METHODS :

This module is based on an inductive teaching approach. Student presentations will give rise to group discussions with other students and teaching staff. Each group will also provide a report to the teaching staff.

3 grades :

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

- At the end of module 1 : Group work Oral presentation 1/4 (Group)

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

Module 2: Agroecological practices and sustainable wine production *	FERRER Aurélie	Lectures	Tutorials	Practicals	Field trips	Supervised work	Evaluation	Project work
		30.00 h	5.50 h	-	9.00 h	17.50 h	12.00 h	-
ECTS : 6.00								

OBJECTIVES:

This module aims at developing students' awareness about sustainable agriculture issues and agroecology at a field scale. It will deal with agroecological practices and how they can support transition to sustainable agricultural (including winegrowing) production. These agroecological practices are based on developing ecosystem services to mitigate the impact of agriculture on the environment. Students will have the opportunity to grasp the link between biodiversity and ecosystem services in agriculture. Conceiving agroecological wine production systems is a way to reduce the use of inputs and obtain resilient systems able to face global changes affecting agricultural and wine growing activity (i.e. climate change, resource scarcity, evolution of agricultural market, consumers' expectations...).

PROGRAMME :

The module will start with an introduction about agriculture, biodiversity and ecosystem services. The first sequence of this module will then deal with soil fertility and soil biology, the idea being to provide keys to design agroecological systems promoting soil quality. Indeed, several ecosystem services of interest to agriculture are based on soil biota, which agricultural systems need to protect or even promote. To deepen the knowledge gained in these lectures, a field visit and fieldwork will be carried out through soil quality assessments and the identification of beneficial soil, insect or plant biota. The field experience will be linked to different lectures about agroecological cropping practices such as intercropping, cover cropping, conservation agriculture (no tillage and permanent cover), 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.

PREREQUISITES:

Basic knowledge of agronomy, viticulture, ecology.

TEACHING METHODS:

Classroom lectures
Group and personal work
Field work (meetings with stakeholder and field observations)
Seminars (Literature studies and field work)

EVALUATION METHODS:

This module is based on.

3 grades :

- During week 2 of the module : Field work: group presentation 1/3 of the final grade
- At the end of the module : Literature study: written document (individual) – 1/3 of the final grade
- At the end of the module : seminar with students' literature study presentations (individual) – 1/3 of the final grade

Module 3: Viticulture, Terroir and Environment *	SARRAZIN Benoit	Lectures	Tutorials	Practicals	Field trips	Supervised work	Evaluation	Project work
		30.00 h	15.00 h	-	7.50 h	9.50 h	1.50 h	3.50 h
ECTS : 5.00								

OBJECTIFS / OBJECTIVES:

This module aims to develop the students understanding of the link between viticulture, territories and environmental issues and to put into practice methods and tools usually used to assess and manage them (e.g. GIS, indicators, multicriteria analysis).

More specifically this module will permit students to understand:

- How heterogeneous a vineyard can be and how to manage this heterogeneity
- How grape wine production is the consequence of the terroir and what this terroir could be from a biophysical point of view (climate, soil functioning, etc.)
- The impact viticulture can have on the environment (water resources, landscape, biodiversity)

PROGRAMME :

The module is based on three practical applications using environmental factors and analyzing them at spatial scales larger than the field scale. Such assessment requires students to master and use specific tools and methods that will be addressed in this module. We will deal with how viticulture practices could be optimized for a good quality of grape production, without impairing water resources through pesticide contamination while preserving vineyard landscape composition and structure for better biodiversity conservation.

The program will start with a case study dealing with precision agriculture adapted to viticulture: key methods such as spatial variability in vineyards (e.g. soil moisture and physiological plant properties) will be presented by lecturers and applied by students.

Then, the module will focus on water resources and biodiversity conservation in the Beaujolais vineyard region near Lyon. A field visit of experimental vineyard catchments will inform students about current research on pesticide reduction thanks to hydrological processes, and other experimental grass-covered vineyards to reduce runoff and enhance biodiversity. The visit will be completed by lectures on water and pesticide transfer from soils to streams, and by practical work based on spatial analysis of vineyard landscapes using a Geographical Information System (GIS). The case study will include assessment of non-point source pollution and proposing solutions at different scales to promote a functional vineyard landscape to protect water and biodiversity.

Finally, the notion of "terroir" will be addressed to give the students a better understanding of what this notion covers and how to manage a vineyard to optimize its potential.

PREREQUIS / PREREQUISITES:

Basic knowledge of landscape management, soil and water sciences, viticulture, environmental issues (water quality and biodiversity), GIS data and tools.

MODALITES PEDAGOGIQUES / TEACHING METHODS:

Classroom lectures

Practical work from statistics and IT tools

Group and personal work

Field work (meetings with stakeholders, international scientists and field observations)

MODALITES D'EVALUATION / EVALUATION METHODS:

This module is based on.

2 grades :

- At the end of the module : Written document from GIS practical work on landscape studies 1/2 of the final grade
- At the end of the module : Individual exam based on MCQ - 1/2 of the final grade

Module 4: Wine, strategy and market *	CLEMENT Camille	Lectures	Tutorials	Practicals	Field trips	Supervised work	Evaluation	Project work
ECTS : 5.00		32.50 h	4.00 h	-	16.00 h	11.00 h	5.00 h	6.00 h

OBJECTIVES:

This module aims at permitting the students to:

Understand and be able to analyze the functioning of the wine industry

Understand regulations governing this industry and the markets at different scales (local, national and international)

Analyze current market strategies of the different actors (e.g. winegrowers, cooperatives, firms)

Understand the notions of heritage value, terroir and innovations in this sector

Interpret and compare different strategies for the marketing and promotion of the products of these industries in different countries and different economic, social, cultural situations

Assess the impacts of such strategies in terms of sustainability

PROGRAMME :

Numerous issues are addressed in this module (the economy of sectors and how they are regulated, knowledge of the international market and how it is segmented, marketing strategies of companies (between heritage and innovation), the role of consumers, the sustainability of these strategies ...) and three different scales are taken into account (national, European and international). This module aims to reflect a reality: the weight of French wines is on the decline on the international market and new strategies may appear necessary to ensure the viability of French supply channels.

Indicative program

Introduction to the module and student projects/requirements

Wine sector and economics: policies and market

Marketing and promotion strategies

Consumers and wines

PREREQUIS / PREREQUISITES:

Basic knowledge of the wine industry, marketing, economics.

MODALITES PEDAGOGIQUES / TEACHING METHODS:

Classroom lectures

Practical work

Group and personal work

Visits

Seminar based on students work and discussion with experts (round table)

MODALITES D'EVALUATION / EVALUATION METHODS:

1) An individual assessment: each student will write an individual synthesis on the issue of the module 4 who is: the two "worlds" of wine and the contrast between French and international strategies. This synthesis will be based on bibliography, courses, visits... A special attention should be paid to the mobilization of field visits in this work. The synthesis takes the form of professional newspaper article with a specific issue and argumentation.

2) An assessment by group of two students: each group of two students will choose the first day in a list of issues. These issues aim to the thematic "economy and management" or the thematic "regional strategies". The answer to the issue chosen will be presented in an oral with a PPT presentation the 3th December. The assessment to this oral can be enhanced by another oral on field visits.

The exact details of these evaluations will be presented in the introduction of the module the 25th November.

Module 5: Group project *	CELETTE Florian	Lectures	Tutorials	Practicals	Field trips	Supervised work	Evaluation	Project work
ECTS : 10.00		3.00 h	-	-	-	32.00 h	3.00 h	110.00 h

OBJECTIVES:

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 semester. The objectives are to use different methodological and project management tools (defining leadership, time schedule, and deliverables) adapted to the demand, and to apply disciplinary knowledge previously acquired. 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.

PROGRAMME :

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 given to the external clients.

PREREQUISITES:

Depending on the selected project. Methodology for interviews, field observations, data analysis...

TEACHING METHODS:

Personal and group work

MODALITES D'EVALUATION / EVALUATION METHODS:

Module evaluation is based on.

2 grades :

- At the end of the module : written report 1/2 of the final grade
- At the end of the module : Oral presentation of the group with the external client – 1/2 of the final grade