RÉPUBLIQUE FRANÇAISE
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L'INSTITUT agro Dijon

Livret de formation

Programme 2025 - 2026

Food Formulation - SUFFICIENT (**SU**stainable **F**ood **F**ormulation: **I**nnovation, **C**hoice of **I**ngredients; **E**nergy, **N**utrition, **T**rade challenges)

(Titre en français : formulation durable d'aliments)

Head of the specialization in Food Formulation, SUFFICIENT: Camille Loupiac, Professor in Food Biochemistry

The SUFFICIENT specialization validates half of the last year of the Institut Agro Dijon diploma in Agro-Food engineering. The Academic level corresponds to the beginning of 2nd year of M.Sc and is accessible with an equivalent of 1st year of M.Sc. (exception can be studied for foreign students).

Table of contents

Preamble

Formulate or reformulate a food strategy
Formulation using science skills and management tools for food engineering project

Sustainable food formulation
Uphold the product quality whilst reducing our environmental footprint

The food industry has made free major societal advances:

- Offer food security (provide food for everybody and ensure nutritional intake)
- Ensure hygienic and toxicological safety
- Free from household constraints (mainly women)

Progress yes, but at what cost? The intensification of the transformation of raw materials into food (industrialization, industrial concentration, concentration of the supply sector with supermarkets) and the permanent fall in food prices from the 1950s to 2005 were done without regard to the ecological and human consequences. On the other hand, global constraints (population growth, increasing artificialisation of agricultural land, climate change) will certainly force us to review our food and production methods and therefore both the formulas and the processes implemented.

It is therefore advisable to look at food formulation from a sustainable point of view and to add to the usual formulation constraints (hedonic quality guarantee, functionality, hygiene and toxicology constraints, regularity of supply, price, etc.) the sustainability constraints:

Ø Can I formulate differently to reduce the impact of eutrophication, nitrogenous discharges, carbon emissions (carbon footprint), fossil energy resource…?

Ø Can I organise it another way: for both fair remuneration of the actors in the supply chains, for fair payment of raw materials and ingredients for primary processing in order to establish a sustainable trade exchange?

Educational strategy of SUFFICIENT specialization

Learning by doing

Food Formulation using food sciences (chemistry, physicochemistry and sensory sciences)

As engineers we need to continue offering solutions for high-quality food (nutrition, flavor & taste, service) using a sustainable path. The choice of ingredients and their implementation should follow basic rules: use clean-label ingredients, promote fairly trade food, set up procedures for life cycle assessment…

How to be a food engineer with an in-depth expertise in food formulation?

- By achieving an actual food product! The students will produce prototypes at lab scale, and pilot scale if possible, to enable sensory analyses.

- By practicing English in a professional context. Many food companies operate in English, even in France! SUFFICIENT specialization focuses de facto on a project in partnership with an industrial partner, from local small business to global firms. To improve work efficiency, the students in groups of 3 to 5, will have to deliver several reports and oral defenses in English throughout the formulation project SUFFICIENT.

The students need a minimum of B1 level in English (corresponding to a TOEIC score higher than 550 points) but a B2 level is recommended (TOEIC score above 785).

- Lectures or tutorials prepare students to formulation project. Professionals from B2B food industries complete the training about food ingredient management.

- A particular focus on protein sourcing & functionality allows evaluating the potential of novel protein sources and alternative with polysaccharides to compensate the suppression of animal proteins.

The educational program

SUFFICIENT specialization is intended to welcome non-French speaking students and to allow L'Institut agro Dijon to increase the number of external students. Apart French terms in sensory analysis the teaching is done in English (reports, exams, teacher-student communication). **The official language** of the SUFFICIENT is **English** in order to meet the objectives of "internationalization at home" and the enrolment of foreign students. All reports are written in English. All oral defenses, reports, and examinations are in English. Nevertheless, to respect the French Toubon's law, SUFFICIENT requests an extended summary of five pages in French language: French students will help their foreign colleagues for this exercise.

SUFFICIENT specialization has a pedagogy based on **"learning by doing"**. In fact, two projects are the heart of the SUFFICIENT: the formulation project, labelled C project and a collective project :

- C project : all the students (co-op students, apprentices, international exchange students, and students in conventional university curriculum) have a C project with an industrial partner, working in a factory (co-op, apprentice) or in labs of L'Institut agro Dijon (conventional curriculum).

- Collective project: all students work together to evaluate potential new protein sources and polysaccharide alternatives in response to the withdrawal of animal proteins.

The courses (lectures, practical works, and tutorials) in SUFFICIENT specialization are all supporting the C projects, the collective project and their successful completion. The education program follows the logic from the start of a project to its closure. Firstly, we pay attention to human organization: the groups are constituted according to Belbin's methods and few tools for group management are given. The basics

of project management and programming help students to conduct the two projects. Next, come the technical parts. Formulating a food product requires science and technical skills. To help in the achievement of the two projects, list of different foods ingredients show students during tutorials what type of sciences are behind the job of formulator: chemistry, physicochemistry and sensory evaluation. The SUFFICIENT specialization requires a prerequisite in food science prior to the start of the academic year. Students are encouraged to compensate for any technical and scientific weaknesses by reading recommended books.

Knowing how to formulate taking into account some of constraints of sustainability is addressed in the two projects using soft to calculate environmental impacts. Finally, after the implementation of experiments projects, SUFFICIENT training requires a contribution on the art of communication, with a final oral defense in front of a jury and the project sponsor.

Two teaching units constitute the SUFFICIENT specialization:
- a project of the formulation of a food (named C project)**, labelled UE14 (9 ECTS)**
- SUFFICIENT specialization, labelled UE15 (16 ECTS).

1) Teaching unit UE14: Formulation project (C project) – 140 student hours

“From a formulation of a food to the delivery of a lab model or a first prototype to an industrial partner”

Project C (UE14) is an integral part of SUFFICIENT specialization and is even the heart of the courses of SUFFICIENT specialization (UE15). The whole course is structured around C project. Everything taught in EU15 is at the service of C project and its implementation. The working language is English.

The expectations of C project**:** the formulation of a foodstuff or a technological aptitude of an ingredients (intermediate food product), must have been carried out using scientific approach. The development of the new product or the reformulation must have been "designed" to meet the consumer expectations. The achievement of the project is based on well-established scientific concepts such as chemistry, physicochemistry and sensory analysis skills. The project takes into account the constraints of sustainability and safety assurance. The study must also have taken into account the cost of research for the development of the product.

From the idea to the prototype in seven steps:

- The go-to-live: using collective intelligence tools, the project group (3-5 people) is set up. The project, chosen by the group, begins on the first day of the specialized teaching. The sponsor in partnership with the project participates the study through various working meetings.
- A short marketing analysis, centered mainly of a product benchmarking and customer profitability analysis (concluded with oral defense & a written report), enables the definition of a PDS (Product Design Specification).
- A scientific state of art (concluded with oral defense & a written report) constitutes an essential step in order to predict chemical reactions occurring during process, physical behaviors and stability, and to prepare lab experiments and formulation trials.
- A project management is necessary: a "GANTT" chart describes the experiments using

WBS & OBS[1] and allows to book lab apparatus or sensory analyses. This preliminary step before experiments needs also a cost evaluation of the project.

- The experiments and formulation trials are distributed through four full-weeks of labs works (in chemistry lab, physicochemistry lab and sensory evaluation lab), with one or two weeks coming in between for data analysis, time for thinking time, interactions with the industrial partner, reorientation of the project (follow-up of the GANTT) and preparation of the following experiments.

- The production of a lab model or a pilot scale prototype enables evaluation by sensory analysis.

- The final oral defense and written report give decision-making tools for our industrial partner and advices to your industrial partner in order to help the company to continue (ideas for a new food development in R&D) or stop the project. The students present a science-based model of their system in order to verify their scientific skills.

The assessment is based on a competency sheet developed for SUFFICIENT specialization

The validation of the UE is done based on professional skills acquisitions described in a skills sheet.

2) Teaching unit UE15: SUFFICIENT courses – 201 student hours

The seven teaching modules provide the necessary skills in formulation (scientific and strategy), on sustainable aspect of food, project management in R&D and creativity, marketing, food safety evaluation & conformity of food with European standard & regulation, but also in oral communication skills & written communication skills. A large part of the work time is freed up to allow for independent work of student.

a. Technical & Scientific Aspects of formulation (47 student hours)

This module constitutes the core business of the engineer, the engineer being a scientist at the service of concrete achievements[2]. The module requires high scientific levels, especially in food chemistry, food physicochemistry, and sensory science (the three scientific disciplines of food formulation.

- Experimental design - optimization (14 h)
- Use of consumer and sensory science for the develoment of sustainable food products (2 h)
- Consumer liking: influence of context and information (2 h)
- Management of a sensory analysis software (Fizz ®) (2 h)
- Define your target from a sensory point of view: What are the sensory characteristics of current commercial product? (2 h)
- Penalty Analysis protocol et Fizz (7 h)
- Descriptive tests on market products (4 h)

- Bioressources and emerging technology (2 h)
- Physico-chemistry of projects (4 h)
- Deformulation and formulation strategy (8 h)
-)

Individual examination: formulation challenge

b. Sustainable aspect of food (49 student hours)

Student can learn in this module:

- Sustainability from an environmental point of view, calculation of environmental aspect (use of Simapro software ®) (6 h):

respect for biodiversity, saving agricultural land, water, reducing inputs, etc., the relationship between agricultural production orientations and outlets (illustration of the case of legumes: yield per hectare and resistance to disease and water stress versus suitability for processing and human foodstuffs); virtuous animal sector and ecological grassland

- Economical sustainability (4 h):

fair trade (Max Havelaar type), maintaining social relations and maintaining economic development, sustainable growth or green economy versus green decline and frugal society, price volatility and speculation on raw materials..., supply chain and short circuits.

- Life cycle (6 h): done in a flipped class

Ecodesign in 5 steps (1. Materials 2. Technologies 3. Energy challenge 4. Transport 5. Life span 6. End of life and recycling), Zero waste: food waste recovery, renewable food; extraction and by-product uses. The aim is to produce or extract by valorising all the compounds. For example, the particular case of anti-nutritional factors and their use can serve as an illustration, food waste, supermarkets, changing diets, and eating habits

- Polysaccharide to compensate the weakness of vegetable proteins (33 h):

The case of proteins is the critical point in securing food intake. As it is more expensive than lipids or carbohydrates and more difficult to produce, it presents a challenge for the objective of sustainability. The animal proteins most commonly used in the Western human diet are produced with low protein conversion yields à (plant-animal), from 4% to barely 20%. It seems that the use of animal protein is a luxury, which cannot be extended to the rest of the world, nor maintained in the West. The production of animal proteins is more expensive in terms of agricultural land, water, energy (raw product), and environmental impact than vegetable proteins. With the exception of soya, the plant proteins currently used have poor technological capabilities (emulsion stabilization, gelation ability). Research efforts are needed to increase their techno-functional abilities: isolation techniques, functionalization processes and final processing. One can also look for new sources of proteins that are more easily exploitable, but these new proteins present other constraints.

c. Project management in R&D and creativity (21 student hours)

In this module, we focus on the main phases of a project, with particular emphasis on the initiation phase of a project with its essential study of consumer expectations and the study of the competition, via a benchmarking of formulations.

Ø Project management: initiation (signature of the contract) and with project charter: project design specifications, plan design, executing phase, monitoring, closing + leading meetings (2 h)

Ø Introduction to collective intelligence: applied to the formation of a project group C, with complementary collaborators (Belbin's techniques for setting up working groups) (1 h)

Ø Practical introduction to the creativity management (2-day course outside of L'institut agro Dijon) on the characteristics of a creative person, the different forms of brainstorming, the weak signals, open innovation, frugal innovation, design thinking, visual thinking and the early production of a model (16 h)

Ø Programming: the good use of the GANTT (OBS), based on WBS & RBS[3] just before the first tests of the C project and costing and virtual use of an R&D operating budget (2 h).

Ø Definition of the specifications of project C with an emphasis on the notion of project management, response to financial and commercial expectations, the keeping of the laboratory notebook à see modules 6 and 7 for written report and oral defense.

d. Marketing (12 student hours)

In this module, we focus on the initiation phase of a project with its essential study of consumer expectations and the study of the competition, via a benchmarking of formulations.

Ø Introduction to product benchmark: Benchmarking: an example of competitive research and identification of unoccupied markets ...

Ø Introduction to B2B marketing

Ø Strategic marketing

Ø Operational marketing

Ø Achievement of a product benchmark both technical and on the image-price policy, deformation of the products in the competition sector, in connection with the C project à see modules 6 and 7 for written and oral report.

e. Food safety assessment and conformity of food with the European standard & regulation (10 student hours)

In this module, risk assessment will be carried out in a context of search for a sustainable solution with its risks: e.g., organic farming and the risks linked to mycotoxins in the absence of the use of fungicides (presence of mycotoxins). The toxicity of mycotoxins is variable, some of them being hepatotoxic or even carcinogenic (aflatoxins), others being oestrogenic (zearalenone), immunotoxic (patulin, trichothecenes, fumonisins), nephrotoxic (ochratoxin A) or neurotoxic (tremorgenes) in farm animals or humans. The topics covered will be

Ø Risk assessment tools and compliance with regulations (2 h)

Ø Innovation strategies and safety constraints, including (8h)

- the search for regulatory information,
- the file preparation (*novel food*, new ingredients),
- the illustration of substances of interest (enzymes, flavoring, nanoparticles)
- the emerging risks

f. Professionnal skills in english (18 student hours)

This module involves various professionals from the cosmetics, food, and ingredients sectors. These conferences enable students to communicate and exchange with professionals to clarify information relating to the two projects in progress (C project and collective project).

g. Autonomous work & and communication skills (44 student hours)

During the SUFFICIENT specialization, different oral defenses (in English) and written reports (in English with an extended five pages summary in French language) are requested link to C project **in partnership with industrial sponsor and collective project.**

- Programming of the two project (project management).
- Benchmarking in relation to the commercial universe of C project, on product benchmarking up to a technical analysis of the competition's products, deformulation
- State of the art on the structures involved, predictable chemical and physical reactions, details of the analytical tools to be used (two projects).
- LCA evaluation of C project
- Conclusion of two projects: give decision-making tools for our industrial partner and advices to your industrial partner in order to help the company to continue (ideas for a new food development in R&D) or stop the project.

Type of jobs

The main jobs offered in **food companies**, or even in **cosmetic companies**, are the followings: mainly in Research & Development (formulation, ingredients sourcing, reverse formulation…), followed by quality management and technical-sales engineer.

[1] WBS : Work Breakdown Structure; RBS : Ressource Breakdown Structure; OBS : Organizational Breakdown Structure

[2] Definition of engineer according to the CTI (commission des titres d'ingénieur): "Engineers are scientific and technical managers with the skills to manage direct and conduct engineering work; engineering is the realisation of

objects, systems or services that generally meet a need or market in a competitive environment, by bringing together, implementing and developing the necessary skills".

[3] OBS = Organizational Breakdown Structure; WBS : Work Breakdown Structure; RBS : Ressource Breakdown Structure

Programme

SEMESTRE 9

Dominante Sufficient			
Unité d'enseignement	Module	Heures étudiant	Coefficient
ING3A-S9-TC-UE14 - UE14-PROJETS D'INGENIEUR - ETAPE C	Projets d'ingénieur-phase C : conduite d'un projet de la formulation de la commande au délivrable	140	9
code2015 - UE15-TRONC COMMUN-SUF	Technical & Scientific Aspect of the Formulation	47	6
	Sustainable aspect of food	49	3
	Project Management in R&D and creativity	21	1
	Marketing	12	1
	Food safety evaluation & conformity of food with the European standard & regulation	10	1
	Professionnal skills in english	18	2
	Autonomous work and written communication skills	44	0
	Total	**341**	

Dominante Sufficient - Dominante Sufficient
SEMESTRE 9

ING3A-S9-TC-UE14 : UE14-PROJETS D'INGENIEUR - ETAPE C
Module Obligatoire

Parc-ING3A-S9-TC-UE14

Projets d'ingénieur-phase C : conduite d'un projet de la formulation de la commande au délivrable

Nb heures / étudiant	140				
Formes Pédago.	CM	TD	TP	ST	Vis
Nb heures	-	-	-	-	-
Nb groupes	-	-	-	-	-

Enseignants responsables	Eric FERRET
Département/UPé	
Compétences	
Objectifs Developpement Durable	Module ressource, non concerné

Objectifs du module	Propre à chaque dominante. Voir livret de dominante.
Objectifs d'apprentissage	
Pré-requis	
Contenu	A titre d'exemple, les projets C des années précédantes ont porté sur:

Évaluations	-
Coefficient	-

ING3A-S9-TC-UE14-SUF-M01

Projets d'ingénieur-phase C : conduite d'un projet de la formulation de la commande au délivrable

Nb heures / étudiant	140				
Formes Pédago.	CM	TD	TP	ST	Vis
Nb heures	-	-	-	-	-
Nb groupes	-	-	-	-	-

Enseignants responsables	Celine LAFARGE, Philippe CAYOT, Camille LOUPIAC
Département/UPé	UPE CHIMIE, PHYSICO-CHIMIE ET FORMULATION
Compétences	Réaliser un diagnostic, Conseiller et former, Conduire des projets innovants, Gérer des projets
Objectifs Developpement Durable	Consommation et production responsables

Objectifs du module	Project C: From a formulation of a food to the delivery of a model or prototype for an industrial partner. SUFFICIENT is a specialization course focused on food formulation at the end of the food engineer program (master degree) of Institut Agro Dijon. SUFFICIENT means Sustainable Foof Formulation: Innovation Choice of Ingredients for Energy saving, Nutrition quality, Trade challenges. The course SUFFICIENT aims to give you all the skills to formulate or reformulate a food in an industrial context. The SUFFICIENT course is based on the management of a project, mainly with an industrial partner. You will be able to explain the choice of your product and formula, and the objective you have fixed using the data you obtained during the product benchmarking study. You will be able to explain the reason of the experiments you have done, based on the deep scientific and technic state of art. You will be able to explain your scientific choices, specify your methods and materials. You will be able to purpose a formula of a food considering sustainability aspects (environment and socio economic), nutritional aspects, to produce a written report. You develop skills to offer major decision-making tools and advices to you industrial partner, in order to help the company to continue or stop the project.
Objectifs d'apprentissage	
Pré-requis	Your are supposed to have in - depth konwledges in food chemistry and food physical chemistry, sensory evaluation and nutrition. You need to have been already sensitized to the issue of food safety (microbiology, toxicology), food processes, fermentation processes. You supposed to work in a lab. of chemistry or physical chemistry, handle chemicals, to have expertise in chemical experiments, used rheology instruments and lead a sensory evaluation. You normally know how to find informations, obtained knoweldges you need to solve a technical problem, an issue, or to carry out a research project. You should be able to analyse the bibliography and web sources, to exploit the informations you get and to use these informations. You have to self-learning skills.
Contenu	

Évaluations	CC : mise en situation pratique en groupe
Coefficient	9

Dominante Sufficient - Dominante Sufficient
SEMESTRE 9

code2015 : UE15-TRONC COMMUN-SUF
Module Obligatoire

ING3A-S9-UE15-SUF-M01

Technical & Scientific Aspect of the Formulation

Nb heures / étudiant	47				
Formes Pédago.	CM	TD	TP	ST	Vis
Nb heures	23	14	10	-	-
Nb groupes	1	2	2	-	-

Enseignants responsables	Camille LOUPIAC, Philippe CAYOT, Celine LAFARGE
Département/UPé	UPE CHIMIE, PHYSICO-CHIMIE ET FORMULATION
Compétences	Réaliser un diagnostic, Conduire des projets innovants
Objectifs Developpement Durable	Consommation et production responsables, Infrastructure résiliente, Industrialisation durable et Innovation, Accès à la santé, Lutte contre la faim

Intervenants Internes	Virginie DANTEN, Aurelie LAGORCE, Philippe CAYOT, Helene LABOURE, Dominique CHAMPION, Gaelle ARVISENET

Objectifs du module	Acquire the technical and scientific skills of formulation
Objectifs d'apprentissage	Mainly Hard skills: - use chemistry to analyze the formulation over a simple list of ingredients and additives but as a sum of molecules that can react during processes and storage - understand the structuration during processes and the evolution of structures during storage using the fundamental bases of physicochemistry - select the best tools for sensory analysis
Pré-requis	The module requires high-level scientific skills, especially in Food Chemistry, Food Physicochemistry, and Sensory Sciences (knowledge & knowhow in the three bases disciplinaries of food formulation).
Contenu	- Optimization - experimental plan - Input of sensory evaluation (sensory and/or consumer approaches) on product development and innovation - Sustainable food system: consumer representation, attitude, expectation - Fizz software (sensory evaluation records & treatments) - Preference mapping and food product development - Penalty analysis food product development - Multivariate statistical analysis applied to sensory evaluation - Bioressources and emerging technology - Physico-chemistry of projects - Deformulation excercices and Formulation Strategy

Évaluations	CC : compte-rendu ou rapport écrit en groupe	CT : écrit individuel
Coefficient	1.5	4.5

Dominante Sufficient - Dominante Sufficient
SEMESTRE 9

code2015 : UE15-TRONC COMMUN-SUF
Module Obligatoire

ING3A-S9-UE15-SUF-M02

Sustainable aspect of food

Nb heures / étudiant	49				
Formes Pédago.	CM	TD	TP	ST	Vis
Nb heures	21	8	20	-	-
Nb groupes	1	2	2	-	-

Enseignants responsables	Philippe CAYOT, Camille LOUPIAC, Celine LAFARGE
Département/UPé	UPE CHIMIE, PHYSICO-CHIMIE ET FORMULATION
Compétences	Réaliser un diagnostic, Gérer des projets, Conseiller et former, Conduire des projets innovants, Mettre en oeuvre une communication participative
Objectifs Developpement Durable	Infrastructure résiliente, Industrialisation durable et Innovation, Consommation et production responsables, Villes et communautés durables, Lutte contre le changement climatique

Intervenants Internes	Emmanuelle RICAUD ONETO, Remi SAUREL, Aurelie LAGORCE, Philippe CAYOT, Camille LOUPIAC, Helene GERARD-SIMONIN

Objectifs du module	Take into account the constraints of sustainability in the formulation of a food
Objectifs d'apprentissage	To be able to calculate environmental impacts (endpoints) and choose some midpoints in order to communicate and change practices or formulation in order to decrease the environmental impacts To be able to manage environmental scores such as EcoScore
Pré-requis	The module requires high-level scientific skills, especially in Food Chemistry, Food Physicochemistry and Sensory Sciences (knowledge & knowhow in the 3 basics disciplinaries of food formulation).
Contenu	- Calculation of enviromental impact ; use of the soft "SimaProS" to analyze Life Cycle Assessment (LCA), (ISO 14040) - Economical sustainability - Zero waste strategy - Product life cycle (environmental suistability) & ecodesign - Food wastage - Sharing of expertise between a chef and the technological approaches developed by students in the laboratory - Uses of vegetable proteins in dairy analogues - Use of polyosides as a solution to compensate the functional properties weaknesses of plant proteins - Use vegetable proteins (& novel proteins) to replace animal proteins

Évaluations	CC : oral en groupe	CC : mise en situation pratique en groupe
Coefficient	1	2

Dominante Sufficient - Dominante Sufficient
SEMESTRE 9

code2015 : UE15-TRONC COMMUN-SUF
Module Obligatoire

ING3A-S9-UE15-SUF-M03

Project Management in R&D and creativity

Nb heures / étudiant	21				
Formes Pédago.	CM	TD	TP	ST	Vis
Nb heures	6	15	-	-	-
Nb groupes	1	2	-	-	-

Enseignants responsables	Celine LAFARGE, Camille LOUPIAC, Philippe CAYOT
Département/UPé	UPE CHIMIE, PHYSICO-CHIMIE ET FORMULATION
Compétences	Gérer des projets, Conduire des projets innovants
Objectifs Developpement Durable	Infrastructure résiliente, Industrialisation durable et Innovation

Intervenants Internes	Camille LOUPIAC, Jerome AUBERT, Philippe CAYOT

Objectifs du module	Acquire skills in R&D project management and innovation management
Objectifs d'apprentissage	* able to establish a retroplanning, to manage cost of project * able to lead innovative projects
Pré-requis	
Contenu	- Global project management connected to the C project - Collective intelligence (Belbin's techniques for setting up working groups) - Creativity management (theory & practice in 3-day seminar) - Work Planning (retroplaning with GANTT, full description of all tasks by WBS, RBS and OBS) and the keeping of the laboratory notebook - Costs of project

Évaluations	CC : oral en groupe
Coefficient	1

Dominante Sufficient - Dominante Sufficient
SEMESTRE 9

code2015 : UE15-TRONC COMMUN-SUF
Module Obligatoire

ING3A-S9-UE15-SUF-M04

Marketing

Nb heures / étudiant	12				
Formes Pédago.	CM	TD	TP	ST	Vis
Nb heures	12	-	-	-	-
Nb groupes	1	-	-	-	-

Enseignants responsables	Camille LOUPIAC, Celine LAFARGE, Philippe CAYOT
Département/UPé	UPE CHIMIE, PHYSICO-CHIMIE ET FORMULATION
Compétences	Réaliser un diagnostic, Gérer des projets, Conduire des projets innovants
Objectifs Developpement Durable	Consommation et production responsables

Intervenants Internes	Monia SAIDI

Objectifs du module	Master the basics of food marketing
Objectifs d'apprentissage	- Know how to establish specifications based on marketing expectations - Have the reflex to study the competition before launching any R&D or innovation project
Pré-requis	Notions of marketing (done in AgroSup Dijon in semester S7)
Contenu	- Product Benchmarking (in relation with the C project, UE14) - Global marketing vision of products, and espacially value proposition canvas - Marketing specific B to B - Strategic marketing - Operationnel marketing

Évaluations	CC : compte-rendu ou rapport écrit en groupe	CC : oral en groupe
Coefficient	0.8	0.2

Dominante Sufficient - Dominante Sufficient
SEMESTRE 9

code2015 : UE15-TRONC COMMUN-SUF
Module Obligatoire

ING3A-S9-UE15-SUF-M05

Food safety evaluation & conformity of food with the European standard & regulation

Nb heures / étudiant	10				
Formes Pédago.	CM	TD	TP	ST	Vis
Nb heures	3	-	7	-	-
Nb groupes	1	-	2	-	-

Enseignants responsables	Celine LAFARGE, Philippe CAYOT, Camille LOUPIAC
Département/UPé	UPE CHIMIE, PHYSICO-CHIMIE ET FORMULATION
Compétences	Réaliser un diagnostic, Conduire des projets innovants
Objectifs Developpement Durable	Consommation et production responsables

Intervenants Internes	Isabelle SEVERIN

Objectifs du module	Food safety evaluation & conformity of food with the European standard & regulation
Objectifs d'apprentissage	To manage : - risk assesment tools and compliance with regulations - innovation strategy and safety constraint (novel food regulation)
Pré-requis	Basic knowlegde about toxicology
Contenu	

Évaluations	CC : oral en groupe
Coefficient	1

Dominante Sufficient - Dominante Sufficient
SEMESTRE 9

code2015 : UE15-TRONC COMMUN-SUF
Module Obligatoire

ING3A-S9-UE15-SUF-M06

Professionnal skills in english

Nb heures / étudiant	18				
Formes Pédago.	CM	TD	TP	ST	Vis
Nb heures	18	-	-	-	-
Nb groupes	1	-	-	-	-

Enseignants responsables	Celine LAFARGE, Philippe CAYOT, Camille LOUPIAC
Département/UPé	UPE CHIMIE, PHYSICO-CHIMIE ET FORMULATION
Compétences	Mettre en oeuvre une communication participative
Objectifs Developpement Durable	Module ressource, non concerné, Accès à une éducation de qualité, Réduction des inégalités

Intervenants Internes	Philippe CAYOT, Camille LOUPIAC

Objectifs du module	Apply a cumulative public speaking skills to project C professional requirements
Objectifs d'apprentissage	Can effectively communicate, justify, and clarify in english informations pertaning to informations to different steps of the project C
Pré-requis	To already have done an oral defense of project management (about scientific overview, pratical results, scientific trainee) (B project in Agrosupdijon for instance)
Contenu	Oral communication skills applied to project C: GANTT, benchmark & deformulation of competitors, science & technical state of art, Life Cycle Assessment - LCA -, and final oral presentations Professional conferences (food and cosmetic).

Évaluations	CC : oral en groupe
Coefficient	2

Dominante Sufficient - Dominante Sufficient
SEMESTRE 9

code2015 : UE15-TRONC COMMUN-SUF
Module Obligatoire

ING3A-S9-UE15-SUF-M07

Autonomous work and written communication skills

Nb heures / étudiant	44				
Formes Pédago.	CM	TD	TP	ST	Vis
Nb heures	-	-	44	-	-
Nb groupes	-	-	8	-	-

Enseignants responsables	Philippe CAYOT, Camille LOUPIAC, Celine LAFARGE
Département/UPé	SCIENCES ALIMENTS-NUTRITION
Compétences	Gérer des projets, Conduire des projets innovants, Mettre en oeuvre une communication participative, Encadrer une équipe
Objectifs Developpement Durable	Accès à des emplois décents, Module ressource, non concerné

Intervenants Internes	Philippe CAYOT, Jerome AUBERT, Camille LOUPIAC, Monia SAIDI, Helene GERARD-SIMONIN

Objectifs du module	Complete the empowerment and professionalization before leaving for an engineering internship (end of training cycle)
Objectifs d'apprentissage	Work in team Prepare an oral defense Write a synthetic and precise report Establish a skill portfolio
Pré-requis	To already have done and written a report of project management (about scientific overview, pratical results, scientific trainee) A & B project (in Agrosupdijon for instance)
Contenu	In connection with C project defenses (connection with UE14), write efficient activity reports. Production of 3 reports about benchmark analysis, science & technical state of art, and the complete final report send to the industrial partner.

Évaluations	-
Coefficient	-