



## **Master in Integrative Biology and Physiology (BIP)**

### **Nutrition, Quality and Health-Track (NQS)**

<https://sciences.sorbonne-universite.fr/en/masters/master-integrative-biology-and-physiology/nutrition-quality-and-health-track-ngs>

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**International winter school SU-UTC:**

**“Culinary Science for Tastier, Healthier Food”**

**Innovation center, University of Compiègne, France**

**From January 27 to February 07/2025**

#### **COURSE PHILOSOPHY AND PEDAGOGIC APPROACH**

This summer school, taught entirely in English, is devoted to an innovative combination of French gastronomy and food science. The latest knowledge in gastronomy science will be addressed during theoretical morning sessions and then directly applied to the preparation of famous French dishes and desserts during afternoon cooking workshops.

- The first week is dedicated to learning how to master the food texture and cooking. In order to illustrate the improvement on food taste and texture provided by modern cooking methods and food texturing agents, each new concept will be implemented in creative recipes.
- Regarding the second week, the knowledge gained during the first week will be applied to enhance the nutritional profile of food. Nutritional aspects will be introduced and the food composition impact on health will be addressed. By mastering the food texture, innovative technological solutions will be proposed and used to prepare fat-reduced, sugar-reduced or gluten-free versions of classic French sauces, dishes or desserts such as chocolate fondants, eclairs or French macarons... but – first of all- without impacting greediness and pleasure of cooking !

These two weeks will be punctuated by cultural outings in order to learn more about French culture and history.

#### **COURSE OBJECTIVES**

- To provide an understanding of the main principles and theories of food science and of the mechanisms of phenomena occurring during dish preparation.
- To develop the awareness of the food composition impact on satiety and health.
- To learn how to prepare healthier dishes and to enhance their nutritional profile by enriching with fibers or proteins and by substituting fat or sugar using innovative approaches.
- To develop the ability to choose the best cooking process or texturing agent depending of the desired end result.
- To learn how to prepare famous French dishes, sauces, desserts and confectioneries (classic and revisited recipes).



## COURSE ASSESSMENT

This summer school course allows the student to obtain **6 ECTS credits**. Final grade is calculated from three exams/projects, with the following breakdown:

- Theoretical knowledge examination (1 h, multiple choice quiz) (30%)
- Discovery report (1-2 pages) (10%)
- Supervised team project on improvement of the nutritional quality of a classic dish or dessert (60%)

**FINANCIAL SUPPORTS:** The master will provide the following financial support:

Paris-Compiègne train tickets

Accommodation and meals for the two weeks

### INSTRUCTORS :

Pr. Claire Rossi ([claire.rossi@utc.fr](mailto:claire.rossi@utc.fr)) Directrice de l'université de technologie de Compiègne

Dr. Mirian Kubo ([mirian.kubo@utc.fr](mailto:mirian.kubo@utc.fr))

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## PROGRAM

### Week 1

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Welcome at the international residence	<p><b>Main trends of French cuisine</b></p> <p><b>Transformation in food during cooking / New cooking techniques</b></p> <p><i>Theory</i> 9h – 12h</p>	<p><b>Sensory analysis theoretical basis</b></p> <p><i>Theory</i> 9h – 12h</p>	Work in autonomy	<p><b>Texturing agents</b></p> <p><i>Theory</i> 9h – 12h</p> <p>Part 1: Thickening and gelling agents</p>	<p><b>Texturing agents</b></p> <p><i>Theory</i> 9h – 12h</p> <p>Part 2: Emulsifying and foaming agents</p>	Technico-cultural outing
	Lunch	<p><b>Cooking workshop and Lunch</b></p> <p><b>Low temperature cooking</b></p>		Lunch	Lunch	
	<p><b>Culinary platform visit</b></p> <p><b>Safety training</b> 13h-14h</p> <p><b>Cooking demonstration by a French Chef</b> 14h30 – 17h</p> <p>Introduction of new cooking techniques</p>	<p><b>Sensory analysis</b></p> <p><i>Practical work</i> 13h – 16h</p> <p>Odours Flavours Textures</p>		<p><b>Texturing agents</b></p> <p><i>Practical work</i> 13h – 16h</p> <p>Thickening</p> <p>Hot and cold gels</p> <p>Spherification</p>	<p><b>Texturing agents</b></p> <p><i>Practical work</i> 13h – 16h</p> <p>Emulsions</p> <p>Foams</p>	



## Week 2

Monday	Tuesday	Wednesday	Thursday	Friday
<p><b>Food and Health: dietary fats</b> <i>Theory</i> 9h – 12h</p> <p>Nutritional aspects and fat substitution strategies</p>	<p><b>Food and Health: sugars and sweeteners</b> <i>Theory</i> 9h – 12h</p> <p>Nutritional aspects and sugar substitution strategies</p>	<p><b>Work in autonomy</b></p>	<p><b>Solutions for an appropriate diet</b> <i>Theory</i> 9h – 11h</p> <p>How to take into account food intolerances and to improve nutritional profile of food</p> <p><b>New healthy ingredients. Application to a French dish</b> <i>Practical work</i> 11h – 13h</p>	<p><b>Team project</b> 9h – 12h</p> <p>Enhancing the nutritional profile of a French culinary specialty</p>
Lunch	Lunch		Lunch	<p><b>Supervised team project</b> <b>Degustation of the project preparations</b></p>
<p><b>How to substitute fats</b> <i>Practical work</i> 13h – 16h</p> <p>Application to French sauces and dishes</p>	<p><b>How to substitute sugars</b> <i>Practical work</i> 13h – 16h</p> <p>Application to famous French pastries</p>		<p><b>Team project</b> 14h – 15h</p> <p>Enhancing the nutritional profile of a French culinary specialty</p>	<p><b>Final cooking class</b> 13h – 16h</p> <p><b>How to make French macarons</b> (classic and light version)</p>
				<p><b>Written Exam</b> 15h30 – 16h30</p>