



## COURSE DESCRIPTION FOOD SCIENCE AND TECHNOLOGY

**SSD: SCIENZE E TECNOLOGIE ALIMENTARI (AGR/15)**

DEGREE PROGRAMME: HOSPITALITY MANAGEMENT (P31)  
ACADEMIC YEAR 2025/2026

### COURSE DESCRIPTION

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### GENERAL INFORMATION ABOUT THE COURSE

INTEGRATED COURSE: NOT APPLICABLE  
MODULE: NOT APPLICABLE  
TEACHING LANGUAGE: ITALIANO  
CHANNEL:  
YEAR OF THE DEGREE PROGRAMME: II  
PERIOD IN WHICH THE COURSE IS DELIVERED: SEMESTER I  
CFU: 6

#### REQUIRED PRELIMINARY COURSES

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#### PREREQUISITES

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#### LEARNING GOALS

The course aims to provide general principles and basic knowledge on: (i) chemical composition of foods, (ii) production and processing technologies, (iii) sensory and nutritional properties of fresh, preserved and cooked foods, (iv) preservation of raw materials, food ingredients and semi-finished products, (v) quality control of fresh, processed, cooked and preserved foods.

#### EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

**Knowledge and understanding**

The training course intends to provide students with the knowledge and tools necessary for the management of a quality system, also analyzing the transformation processes, the preparation and conservation of semi-finished products and finished food products and the management of the transformation and conservation. Such tools will allow students to understand the connections between technologies applied to manufacturing processes, the optimization of food processing management parameters and the implications/consequences on the final quality of food products.

### **Applying knowledge and understanding**

The objective is to provide the student with the knowledge necessary for the development and management of a quality system in the food sector, to be applied to a hotel/restaurant business. In particular, starting from the basic rules for safety, management of the conservation, processing and administration of fresh, cooked and processed foods. Furthermore, the objective will be to transfer to students skills on the quality and identification of the strengths and weaknesses of food supply in a hypothetical hotel catering point.

### **COURSE CONTENT/SYLLABUS**

**1.** Introduction and objectives of the course: **2.** Mediterranean diet, HM and F &B. **3.** Quality Concepts, Quality Control and Quality Systems. Food legislation and certifications (individual project work). **4.** Definitions of agricultural production, agro-industry (first processing) and food industry (second processing). **5.** Review of food chemistry: acid /base reactions, organic compounds (sugars, proteins and lipids), esterification and hydrolysis, peptide bond, glycosidic bond, simple sugars (glucose, fructose, lactose, sucrose) and complexes (starch and cellulose), pectins and dietary fibres, lipid oxidation, lipolysis and proteolysis. Carbon, hybrid orbitals, double bond and phenolic antioxidants, nomenclature, structure and physical properties of the main fatty acids (PA, SA, OA, LA, LnA, ALnA, ARA, EPA, DHA) and their chemical properties (mechanism of formation of peroxides, their decomposition and formation of volatile substances, oxidative rancidity). **6.** Chemical composition and technology of food products (scheme), influence of the quality of animal raw materials and plant origin and processing technologies on the quality of agri-food products. **7.** Notes on some unit operations of food technologies (centrifugation and Stokes' law, filtration and Darcy equation, drying, homogenization, heat treatments). **8.** Processes for processing agri-food products. **9.** Detection of a production process and its spatio-temporal representation (lay-out and flow-chart) for the purposes of implementing a quality system. **10.** Chemical and physico-chemical phenomena of food degradation. **11.** Conservation technologies (drying, salting, heat treatments, refrigeration); meat and fish products and their preservation, preservation of fresh and processed vegetables (tomato preserves, etc) (Individual PW). **12.** Quality systems in the food industry and food outlets (HM). **13.** Group work: intermediate summary analyses. **14.** Individual project works to be presented during the course (format, topics and contents will be defined under the supervision of the teacher).

### **READINGS/BIBLIOGRAPHY**

Notes, original materials and presentations (slide), in-depth texts (pdf) will be provided by the teacher.

### TEACHING METHODS OF THE COURSE (OR MODULE)

Lectures and seminars.

### EXAMINATION/EVALUATION CRITERIA

#### a) Exam type

- Written
- Oral
- Project discussion
- Other

#### In case of a written exam, questions refer to

- Multiple choice answers
- Open answers
- Numerical exercises

#### b) Evaluation pattern