General Information	Studies in **NUTRITION SCIENCE FOR HUMAN HEALTH**
Title of the subject	**Food technologies and quality**
Degree Course (class)	**Nutrition Science for Human Health**
ECTS credits	6
Compulsory attendance	No
Language	Italian

Subject Teacher		
Name and Surname	**Antonella Pasqualone**	
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Place and time of reception	Campus in Via E. Orabona, 4 – DiSSPA Agricultural Plexus; Food Technology Section, floor 0 From Monday to Friday 10.00-13.00 by appointment fixed by e-mail	
ECTS credits details	Discipline sector (SSD)	Area
	Food Science and Technology (AGR/15)	Characterizing

Study plan schedule	Year of study plan	Semester
	first	first

Time management	Lessons	Laboratory	Exercises	Total
CFU	5	1		6
Total hours	40	12		62
In-class study hours				
Out-of-class study hours	85	13		98

Syllabus	
Prerequisites / Requirements	Basic knowledge of Physics, General and Organic Chemistry
Expected learning outcomes (according to Dublin descriptors)	
Knowledge and understanding	- Knowledge of food production technologies and related effects on quality, including nutritional aspects. - Knowledge of the main reference standards relating to processes, labeling and brands in the food sector.
Applying knowledge	- Ability to apply the acquired knowledge to identify the best production technologies to preserve or improve quality, including nutritional one, of a food product.
Making informed judgments and choices	- Ability to judge the influence of the production technology of a food on the quality, including nutritional, of the same.
Communicating knowledge	- Ability to communicate and inform about the effect of food technology on the quality level, including nutritional, of food products.
Capacities to continue learning	- Ability to deepen and update the knowledge of food technologies, the effect on quality and reference standards.
Study Program	
Content	- Production technology of cereal-based foods: modern and ancient

	grains; structure and nutritional composition of the caryopsis; artisanal and industrial milling technology; fractions of debranning; refined and wholemeal flours; nutritional and health claims applicable to cereal-based foods; technological role of gluten; strength of flour; indication of gluten on the label; labeling of food for celiacs; starch: gelatinization, retrogradation, resistant starch; baking technology; biological and chemical raising agents; effect of the raw material and of the process phases on the quality of the bread; baking and acrylamide in baked goods; flat breads; staling of bread and strategies to combat it; pasta making technology; bronze and teflon drawing; HT and LT drying; effect of the raw material and processing on the quality of the pasta; kneading and drying defects; technology of gluten-free pasta, fresh and special; corn-flakes technology; short notes on biscuits. - Vegetable oil production technology. Virgin olive oils: structure and composition of the drupe; extraction of oil from olives; traditional method and continuous method; effect of raw material and processing on oli quality; qualitative classification of olive oils; sensory test; phenolic compounds of extra virgin olive oil; labeling of oils. Seed oils: extraction and refining; margarine. Palm oil. Chemical composition and nutritional aspects of extra virgin olive oil. - Dairy technology: composition of milk; properties of the fat, carbohydrate and protein fractions; caseins and whey proteins; raw milk; types of pasteurized milk; sterilized milk; microfiltration; delactosed milk; vegetable drinks; fermented milk and yogurt. Milk derivatives with a lipid base: cream or cream; butter; clarified butter. Protein-based milk derivatives: production technology of cheeses, ricotta and cacioricotta. - Oenology: composition of grape and must; yeasts; function of sulfur dioxide, its legal limits and labelling; short notes on white, red, rosé and “novello” wine-making; resveratrol; labeling; short notes on vegan, biodynamic, natural and kosher wine. Practise 1) Determination of the composition and quality of cereal-based foods: analysis of the protein content (Kjeldhal), fat (Soxhlet), fiber, determination of humidity and water activity; color determination; structure analysis (mechanical consistency related to chewiness). 2) Determination of the functional properties of wholemeal flours and derived products: determination of total phenolic compounds (Folin Ciocalteu) and antioxidant activity (DPPH); determination of total anthocyanins in pigmented flours. 3) Oil quality control: determination of the level of hydrolytic and oxidative degradation (acidity, number of peroxides, spectrophotometric constants) on different samples; comparison of the sensory characteristics of different oils. 4) Milk quality control: density (Quevenne lactodensimeter); fat content (Gerber butyrometer). Quality control of musts and

	wines: determination of the sugar content (Babo mostimeter and refractometer); determination of the alcohol content with a Malligand ebulliometer.
Bibliography and textbooks	- L. Debellis, A. Poli - Alimentazione, Nutrizione e Salute – EdiSES 2019. - Didactic material, distributed during the course, including the slides discussed and the legal references. This material is made available to students of the course on the online educational platform selected at the beginning of the course (eg Edmodo, Teams, etc.).
Notes to textbooks	- None
Teaching methods	- Lectures + practices
Assessment methods	Written exam
Evaluation criteria	- Knowledge and understanding Check on the knowledge of food production technologies and related effects on quality, including nutritional aspects Check on the knowledge of the main reference standards relating to processes, labeling and brands in the food sector - Applying knowledge and understanding Check on the ability to apply the acquired knowledge to identify the best production technologies to preserve or improve quality, including nutritional one, of a food product - Autonomy of judgment Check on the ability to judge the influence of the production technology of a food on the quality, including nutritional, of the same. - Communication skills Check on the ability to communicate and inform about the effect of food technology on the quality level, including nutritional, of food products. - Capacities to continue learning Check on the ability to deepen and update the knowledge of food technologies, the effect on quality and reference standards.
Further information	