Syllabus

Syllabus

Titul dl curs	Food structure and physical properties
Codesc dl curs	44749
Titul suplementar	
SSD	AGRI-07/A
Lingaz	Inglese
Curs de laurea	Corso di laurea magistrale in Scienze degli alimenti per l'innovazione e l'autenticità
D'autri cursc de laurea (cursc deberieda)	
Dozenc	prof. - ass. Lara Manzocco, Lara.Manzocco@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/43388
Assistent didatich	
Semester	Primo semestre
Ann/Agn de stude	2
Credic universitars	6
Ores de ensegnament	40
Ores de laboratore	20
Ores de stude individual	90
Ores de receviment prevedudes	18
Ressumé di contegnus	-
Argomenc dl curs	Type of course: area caratterizzante Scientific area: Food Technology The course is part the profile "Food quality control and management" The structural complexity of food materials will be illustrated as the result of the interactions among different components under non-equilibrium conditions. The principles of food microstructural engineer required to predict and control biomolecules interactions and their consequences will be

	presented. An overview of analytical methodologies applicable for food structure evaluation (particle size, thermal, optical and electric properties) will be provided, critically discussing the role of the different analytical conditions. Food physical properties as a result of structural interactions. Food structure preservation, destruction, transformation and creation. Polymer science, colloid science, material science. The dynamic multiphase nature of foods. Basic material science concepts - Glass transition. Gordon-Taylor equation. Molecular mobility. WLF equation. Non equilibrium state diagrams. Modified state diagrams. Stickiness. Collapse. - Sol systems. Macro- and nano- disperse systems. Characterization of disperse systems. Formation and destabilization. Surfactants, HLB, HLD. Disperse systems of polymers. DLVO theory. Excluded volume. Intrinsic viscosity. W/W disperse systems. Segregative and associative phase separation. Phase diagrams. - Gels. Classification. Properties. Phase diagrams. Mixed gels. Food physical properties - Particle size and zeta potential analysis - Optical properties. Color measurement. Image analysis. - Thermal properties. TG, DTA, DSC, TMA, DTMA. The course includes lessons, working in groups, practices, laboratory activities, report preparation, experimental data presentation.
Paroles clef	
Prerecuisic aconsiés	
Cursc propedeutics	
Modalité de ensegnament	
Oblianza de frecuenza	No
Obietifs formatifs y competenzes da arjonje	Students are expected to: - recognize the structural complexity of food materials as a result of the interactions among different components under non-equilibrium conditions; - understand the relations between structure of foods and their physical properties following processing and storage; - define analytical protocols to evaluate physical properties of food materials; - develop independent thinking, communication skills, learning and team working capability.
Obietifs formatifs y competenzes da arjonje	

(informazions suplementares)	
Sort de ejam	Written with review questions.
Criters de valutazion	Final mark: clarity and organization of the answers, mastery of technical language, ability to establish relationships between topics.
Bibliografia obligatora	
Bibliografia aconsieda	
Deplù informazions	
OSS	