General Information	
Academic subject	Technology of cereal-based foods (I. C.: Cereal and food preserves technologies)
Degree course	Master "Food Science and Technologies"
ECTS credits	4 ECTS
Compulsory attendance	No
Teaching language	Italian

Subject teacher	Name Surname	Mail address	SSD
	Antonella Pasqualone	antonella.pasqualone@uniba.it	AGR/15

ECTS credits details		
Basic teaching activities	3 ECTS Lectures	1 ECTS Laboratory or field classes

Class schedule	
Period	I Semester
Course year	First
Type of class	Lectures – Discussion of case studies of real analytical results – Laboratory exercitations - Technical visits to cereal-based food industries (if possible, according to the number of students)

Time management	
Hours	100
In-class study hours	38
Out-of-class study hours	62

Academic calendar	
Class begins	September 27th, 2021
Class ends	January 21th, 2022

Syllabus	
Prerequisites/requirements	Knowledge about biochemistry of the main food constituents
Expected learning outcomes	*Knowledge and understanding* ○ Knowledge and understanding about proper processing technologies (including innovative ones) able to produce high quality cereal-based foods *Applying knowledge and understanding* ○ Ability to analyze the relations between cereal-based food composition and properties; ability to analyze the effects of processing conditions on quality features of cereal-based food products *Making informed judgements and choices* ○ Ability to analyze a productive process and to properly choose actions and interventions to manage quality and safety in the cereal-based food industry; ability to properly select the raw materials to ensure the obtaining of high quality of cereal-based food products *Communicating knowledge and understanding* ○ Ability to communicate at company level and to third parties the technical choices needed to manage quality of cereal-based food products *Capacities to continue learning* ○ Ability to deepen and update the knowledge regarding the quality management of cereal-based food products The learning outcomes, in terms of knowledge and ability, are detailed in the Regulation of Bachelor in Food Science and Technology - Annex A (expressed by European descriptors in the framework of food technology field).
Contents	• Milling technology (artisan and industrial); classification of milling streams, milling yield and quality. Process of gluten formation. Analytical methods to

	evaluate gluten quality (with the aid of case-studies, laboratory exercitations and video). Check list on topics discussed. • Bread-making technology: Brabender amylograph; fundamental operations and methods of bread-making; defects and alterations; shelf-life and staling; quality indices; flat breads (with the aid of case-studies, laboratory exercitations and video). Check list on topics discussed. • Dried and fresh pasta-making technology: main parameters influencing the process; fundamental operations; types of drying and their effects; defects and indices of quality of pasta (with the aid of case-studies, laboratory exercitations and video). Check list on topics discussed. • Biscuits' technology. Extrusion-cooking technology: flaked breakfast cereals, puffed cereals, snack foods. Check list on topics discussed.
Course program	
Reference books	• Notes of the lectures distributed during the course (all the support materials are available online by means of the Edmodo educational network). • Cappelli P., Vannucchi V. Principi di chimica degli alimenti, Conservazione, trasformazione, normativa – Ed. 2016 (http://www.zanichelli.it/ricerca/prodotti/principi-di-chimica-degli-alimenti). • Milatovich L., Mondelli G., La tecnologia della pasta alimentare, Chiriotti Editore, Pinerolo, 1990. • Quaglia G. B., Scienza e tecnologia della panificazione, Chiriotti Editore, Pinerolo, 1986. • Carrai B., Arte bianca, Edagricole, 2001. *Additional readings:* • Fast R. B., Caldwell E. F., Breakfast cereals and how they are made. American Association of Cereal Chemists (AACC), St. Paul, Minnesota, USA, 2000. • Kill R.C., Turnbull K., Pasta and semolina technology, Blackwell Science, 2000. • Hui Y.H., Corke H., De Leyn I., Nip W.K., Cross N. Bakery products. Science and technology, Wiley-Blackwell, 2007. • Cauvain S.P., Young L.S., Technology of Breadmaking. Springer Science and Business Media. • Hamaker, Technology of Functional Cereal products. CRC Press. • Schleicher E., Schieberle P., Hoffmann T., Somoza V. The Maillard Reaction: Recent Advances in Food and Biomedical Sciences. Blackwell-Wiley. • Guy R., Extrusion cooking. Technologies and applications. CRC Press, Boca Raton, Florida, USA, 2000.
Notes	
Teaching methods	Lectures (Power Point presentations) – discussion of case studies – laboratory exercitations - technical visits to cereal-based food industries
Evaluation methods	The exam consists of an oral dissertation on the topics developed during the theoretical and theoretical-practical lectures in the classroom and in the laboratory/production plants, as reported in the Academic Regulations for the Master Degree in Food Science and Technology (article 9) and in the study plan (Annex A). Students attending at the lectures may have a middle-term preliminary exam, consisting of a written test, relative to the first part of the program, which will concur to the final evaluation and will be considered valid for a year. The evaluation of the preparation of the student occurs on the basis of established criteria, as detailed in Annex B of the Academic Regulations for the Master Degree in Food Science and Technology. Non-Italian students may be examined in English language, according to the aforesaid procedures.
Evaluation criteria	*Knowledge and understanding* ○ Prove to know and having understood the proper processing technologies (including innovative ones) able to produce high quality

	cereal-based foods *Applying knowledge and understanding* ○ Prove to be able to analyze the relations between cereal-based food composition and properties; Prove to be able to analyze the effects of processing conditions on quality features of cereal-based food products *Making informed judgements and choices* ○ Prove to be able to analyze a productive process and to properly choose actions and interventions to manage quality and safety in the cereal-based food industry *Communicating knowledge and understanding* ○ Prove to be able to communicate at company level and to third parties the technical choices needed to manage the quality of cereal-based food products *Capacities to continue learning* ○ Prove to be able to deepen and update the knowledge regarding the quality management in the production of cereal-based food products
Receiving times	Tutorial activities: from Monday to Friday 9.00 a.m. – 14.00 p.m. by appointment only