

General Information	
Academic subject	Cereal technology and quality marks (I. C.: Food technologies I)
Degree course	Master "Food Science and Technologies"
ECTS credits	5 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	4 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	125
In-class study hours	46
Out-of-class study hours	79

Academic calendar	
Class begins	October 7 th , 2019
Class ends	January 24 th , 2020

Syllabus	
Prerequisites/requirements	Knowledge about biochemistry of the main food constituents
Expected learning outcomes	<p><i>Knowledge and understanding</i></p> <ul style="list-style-type: none"> ○ Knowledge and understanding about proper processing technologies (including innovative ones) able to produce high quality cereal-based foods; knowledge and understanding about quality marks applied to cereal-based foods, included ethnic and religious certifications <p><i>Applying knowledge and understanding</i></p> <ul style="list-style-type: none"> ○ 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; ability to manage quality marks applied to cereal-based food products, including ethnic and religious certifications <p><i>Making informed judgements and choices</i></p> <ul style="list-style-type: none"> ○ 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 fulfilling the requirements of ethnic and religious certifications <p><i>Communicating knowledge and understanding</i></p> <ul style="list-style-type: none"> ○ Ability to communicate at company level and to third parties the technical choices needed to manage quality of cereal-based food products as well as to manage ethnic and religious certifications of cereal-based food products <p><i>Capacities to continue learning</i></p> <ul style="list-style-type: none"> ○ Ability to deepen and update the knowledge regarding the management of quality and of ethnic and religious certifications in the production 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	<ul style="list-style-type: none"> • 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. • Labelling and ethnic and religious quality marks applied to cereal-based food products. Check list on topics discussed.
Course program	
Reference books	<ul style="list-style-type: none"> • 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. <p><i>Additional readings:</i></p> <ul style="list-style-type: none"> • 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	<p>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).</p> <p>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.</p> <p>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</p>

	<p>Master Degree in Food Science and Technology.</p> <p>Non-Italian students may be examined in English language, according to the aforesaid procedures.</p>
Evaluation criteria	<p><i>Knowledge and understanding</i></p> <ul style="list-style-type: none"> ○ Prove to know and having understood the proper processing technologies (including innovative ones) able to produce high quality cereal-based foods; knowledge and understanding about quality marks applied to cereal-based foods, included ethnic and religious certifications <p><i>Applying knowledge and understanding</i></p> <ul style="list-style-type: none"> ○ 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; Prove to be able to manage quality marks applied to cereal-based food products, including ethnic and religious certifications <p><i>Making informed judgements and choices</i></p> <ul style="list-style-type: none"> ○ 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; Prove to be able to properly select the raw materials to ensure the obtaining of high quality of cereal-based food products fulfilling the requirements of ethnic and religious certifications <p><i>Communicating knowledge and understanding</i></p> <ul style="list-style-type: none"> ○ Prove to be able to communicate at company level and to third parties the technical choices needed to manage quality of cereal-based food products as well as to manage ethnic and religious certifications of cereal-based food products <p><i>Capacities to continue learning</i></p> <ul style="list-style-type: none"> ○ Prove to be able to deepen and update the knowledge regarding the management of quality and of ethnic and religious certifications 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