SCUOLA DI SCIENZE AGRARIE, FORESTALI, ALIMENTARI ED AMBIENTALI

COURSE: ANALYSIS, QUALITY AND DEVELOPMENT OF FOOD PRODUCT

ACADEMIC YEAR: 2016/2017			
TYPE OF EDUCATIONAL ACTIVITY: Characteristic			
TEACHER: Nicola CONDELLI			
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Language: Italian			
ECTS: 9 (8 Lectures + 1 practicals)	n. of hours: 80 (64h lesson and 16h tutorials/practice)	Campus: Potenza Dept./School: Scuola di Scienze Agrarie, Forestali, Alimentari ed Ambientali (SAFE) Program: Food Science and Technology	Semester: I

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The course aims to provide all information necessary to provide a critical approach in the implementation of analytical methods used for the verification of compliance and quality of food products and a lot of information required in the development of new food product.

The main provided knowledges are :

Analysis and food quality

Principles of instrumental analytical techniques used for the assessment of food quality in terms of chemical composition of food with particular reference to the nutritional and health benefits. Analytical methods used in the characterization, in the control of food quality and food safety assessment. Practical application of sensory analytical methods specific for various foods products used in the sensory characterization and in the evaluation of consumer preference. Basic knowledge necessary for the acquisition, management and statistical analysis of analytical data.

Food Development

Food production processes (even complex and innovative). Knowledge necessary to solve problems related to technological aspects, as well as to quality and shelf-life characteristics of food and plant sanitation aspects. Knowledge and comprehension of the aspects related to food product development.

At the end of the course students will be able to:

Analysis and food quality

1. Knowing how to choose the analytical methods based on the type of analysis: verification of compliance with legal requirements or quick check process;
2. Being able to program a complete analytical procedure and to implement a sampling methodology;
3. Knowing how to use and interpret the results by using basic statistical methods as t-tests, descriptive statistics, analysis of variance

Food Development

1. Be able to design the various stages of the development of a novel food.

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PRE-REQUIREMENTS

To understand the material presented in this course the following knowledges and skills are needed: general and inorganic chemistry, organic chemistry.

SYLLABUS

The group is divided in 9 teaching blocks.

Analysis and food quality

Block 1. (8h, lectures)

Basic principles of spectroscopic techniques used for the assessment of the quality of food in terms of food chemistry with particular reference to the nutritional and health benefits.

Block 2. (8h, lectures)

Basic principles of chromatographic techniques used for the assessment of food quality in terms of chemical composition of food with particular reference to the nutritional and health benefits.

Block 3. (8h, lectures)

Analytical methods used in the product characterization, quality control of food with particular reference to those used for the evaluation of the nutritional composition, for the nutraceutical characterization, for the evaluation of the antioxidant power

Block 4. (8h, lectures)

Analytical methods used in the control of food healthiness with particular reference to those used for the determination of agricultural chemicals, mycotoxins and allergens.

Block 5. (8h, lectures)

Elements of sensory analysis: study and practical application of specific methods used for the sensory characterization of products and for the assessment of consumer preference.

Block 6. (16h, Practical activity)

Practical experience in the laboratory by the application of instrumental and sensory analytical methods discussed during frontal lessons

Food Development

Block 7. (8h, lectures)

Fundamental concepts for process innovation

Block 8. (8h, lectures)

Innovative technologies used in the production of foods and in the recovery of components from food matrices (high pressure, pulsed electric fields, SFE).

Block 9. (8h, lectures)

Functional foods, nutraceuticals, novel foods: definitions, regulatory aspects, nutritional and health aspects, technologies, market opportunities.

TEACHING METHODS

The course is based on 9 teaching blocks and it includes 64 h lectures and 16 h practical tutorials, concerning the main physical-chemical analysis discussed during lectures.

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EVALUATION METHODS

The aim of examination is to verify the student achieved skills as previously listed.
The examination consists in an oral examination to verify their skills and abilities acquired for the various topics discussed and dealt with during the lectures and laboratory exercises.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

The reference teaching material consists of:

1. Presentations used during the lectures that will be provided to students in pdf format;
2. Articles published in specialized journals;
3. Reference texts that specifically are the following:

Analysis and food quality

Cabras, P., Tuberoso, C., ANALISI DEI PRODOTTI ALIMENTARI (2014). Ed. Piccin Nuova Libraria S.p.A.
Nielsen, S., FOOD ANALYSIS Third Edition (2003). Ed. Springer
Società Italiana di Scienze Sensoriali, ATLANTE SENSORIALE DEI PRODOTTI ALIMENTARI (2012). Ed. Tecniche Nuove

Food Development

Baker, R.B., Wong Hahn, P., Robbins, K.R. FUNDAMENTAL OF NEW FOOD PRODUCT DEVELOPMENT. Elsevier, The Netherlands.
Porretta, S., Moskowitz, H.R. ELEMENTI E CONCETTI NELLO SVILUPPO DI ALIMENTI. Chiriotti Editori, Pinerolo, Italia.

INTERACTION WITH STUDENTS

During the presentation of the course are provided the contact details of the teacher and acquired those of the students in order to facilitate the exchange of information. At the end of each lesson is left a space of time available to students for any questions. For more information or for any other needs, the lecturer will be available to receive students on Monday (11.30-13.30), Wednesday (11.30 -13.30) in room n. 210 of SAFE.

EXAMINATION SESSIONS (FORECAST)[1]

15/02/2017, 15/03/2017, 12/04/2017, 17/05/2017, 14/06/2017, 19/07/2017, 13/09/2017, 18/10/2017, 15/11/2017, 13/12/2017, 17/01/2018, 15/02/2018

EVALUATION COMMITTEE

Dr. Nicola CONDELLI (President), Prof. Fernanda GALGANO (member), Dr. Marisa C. Caruso (replacement member)

SEMINARS BY EXTERNAL EXPERTS SI X NO

[1] Subject to possible changes: check the web site of the Teacher or the Department/School for updates.