
COURSE: Food Chemistry

ACADEMIC YEAR: 2016-2017

TYPE OF EDUCATIONAL ACTIVITY: Free choice

TEACHER: Dott. Mauro De Nisco

e-mail: **denisco@unina.it**

website:

phone: **0971205039**mobile (optional):

Language: **ITALIAN**

ECTS: **6**n. of hours: **48**Campus: **Potenza**
Dept./School: **Dipartimento di Scienze**
Program: **FARMACIA (LM-13)**Semester: **II**

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The goal of food chemistry course is to provide a thorough knowledge of the constituents of food chemistry and the basic principles of food quality.

PRE-REQUIREMENTS

SYLLABUS

Lipids: General information and chemical classification. Saturated fatty acids, mono and polyunsaturated; configuration of double bonds; melting points, fatty acid composition of oils and greases, essential fatty acids. Reactions of unsaturated fatty acids: hydrogenation, oxidation. Lipid peroxidation, hydroperoxides. Mechanisms of formation of Acrolein, toxicity and metabolism. Polymerization processes.

Carbohydrates: General information and chemical classification. Reactions: oxidation of sugars, glucose enzymatic determination; reductions. Glycosides and glycosidic linkage. Oligosaccharides Non-enzymatic Browning processes: thermal processes; the Maillard reaction; hydroxymethylfurfural; Amadori compounds; maltol, isomaltol; melanoidins. Polysaccharides: classification; starch composition, structure and properties. Non-starch polysaccharides and dietary fibre.

Protein: General information and chemical classification. Protein composition of the most common foods; Denaturing processes; Essential amino acids and protein quality. Analysis of proteins in food; which quantitative analysis/amino acids; Lowry method, Kjeldahl method. Protein foods; the milk: casein micelles structure; gluten proteins; bread leavening processes.

Organoleptic properties: Artificial and Natural dyes in food. Taste and smell.

TEACHING METHODS**Theoretical lessons**

EVALUATION METHODS**Written examination and oral examination.****The written examination consists in 20 multiple-choice questions and 2 open questions.****The final evaluation will be expressed by a vote (30/30).**

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

- **Patrizia Cappelli & Vanna Vannucchi "Chimica degli Alimenti" terza edizione Zanichelli**
 - **Paolo Cabras & Aldo Martelli "Chimica degli Alimenti" Piccin**
 - **Tom P. Coulter "Chimica degli Alimenti" Zanichelli**
 - **Lecture notes compiled by Teacher will be distributed as pdf files by e-mail.**
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INTERACTION WITH STUDENTS

Office Hours: Monday 4-6 pm and Tuesday 10-12 am; if these hours are not suitable e-mail for an appointment at an alternate time.

EXAMINATION SESSIONS (FORECAST)¹

20/02/2017, 13/03/2017, 19/06/2017, 10/07/2017, 19/09/2017, 02/10/2017, 06/11/2017, 04/12/2017

SEMINARS BY EXTERNAL EXPERTS YES ☐ NO **X**

FURTHER INFORMATION

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