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**COURSE: CHEMISTRY OF THE FOODS**

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**ACADEMIC YEAR: 2018-2019**

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**TYPE OF EDUCATIONAL ACTIVITY: Free Choice**

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**TEACHER: Prof. Mauro De Nisco**

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

website:

<http://docenti.unibas.it/site/home/docente.html?m=009136>phone: **0971205039**

mobile (optional):

Language: **ITALIAN**

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ECTS: **6**n. of hours: **48**Campus: **Potenza**Dept./School: **Department of Sciences**Program: **Pharmacy (LM-13)**Semester: **I**(from October 1, 2018 to December 31, 2018 - January 20, 2019)

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**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.**

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**PRE-REQUIREMENTS**

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**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.

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**TEACHING METHODS****Theoretical lessons**

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**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).**

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**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.**

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EXAMINATION SESSIONS (FORECAST)<sup>1</sup>

**04/02/2019, 04/03/2019, 03/06/2019, 01/07/2019, 19/09/2019, 07/10/2019, 04/11/2019, 02/12/2019**

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SEMINARS BY EXTERNAL EXPERTS    YES     NO

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FURTHER INFORMATION

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