Academic subject: Analytical methods of food			
Degree Class: LM-7		**Degree Course:** Biotechnologies for the quality and the healthiness of nutrition	**Academic Year:** 2020/2021
		Kind of class: (inserire mandatory o optional)	**Year:** First	**Period:** Second semester

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			ECTS: 3 divided into **ECTS lessons: 3** **ECTS** **exe/lab/tutor:**

Time management, hours, in–class study hours, out–of–class study hours
       lesson: 24   exe/lab/tutor: in–class study: out–of–class study: 51

Language: Italian	**Compulsory Attendance:** no		
Subject Teacher: Valeria D'Orazio	**Tel:** 080-5443166 **e–mail:** valeria.dorazio@uniba.it	**Office:** Department of Soil, Plant and Food Sciences Room 6 Floor 1	**Office days and hours:** From Monday to Friday, by appointment to be agreed by e-mail

Prerequisites:
Fundamentals of food chemistry

Educational objectives:
Graduates will have to acquire in-depth knowledge on the methods of analysis of foods of animal and plant origin

Expected learning outcomes (according to Dublin Descriptors)	**Knowledge and understanding:** Knowledge of the main analytical techniques in the field of food **Applying knowledge and understanding:** Knowledge and understanding of analytical techniques applied to food analysis **Making judgements:** Ability to identify the appropriate analytical technique to be applied according to the type of food and ability to independently evaluate the experimental data obtained **Communication:** Ability to describe the theory behind the analytical procedures **Lifelong learning skills:** Ability to acquire the knowledge and methodological tools necessary to be able to independently provide an adequate update in the future.

Course program

Introduction. General information on the analytic process. Sampling, sample processing and analysis. Relative and absolute methods of analysis. Characteristics of an analytical method.

Qualitative and quantitative analysis.

Spectroscopic methods: interaction of electromagnetic radiation and matter.

UV-Vis spectroscopy. Fluorescence spectroscopy. Near infrared (NIR) spectroscopy. Instrumentation.

Chromatographic methods. General principles and chromatographic techniques.

Basics of food chemistry. Purpose of the analyzes.

Analytical applications in the food sector.

Teaching methods:
Lectures will be presented through PC assisted tools (Powerpoint) and slide projector.

Auxiliary teaching:

Assessment methods:

• **Knowledge and understanding**
Ability to present in a clear way and with adequate language the knowledge concerning analytical techniques in the field of food

• **Applied knowledge and understanding**
Ability to apply the knowledge acquired according to the various food matrices

• **Autonomy of judgment**
Ability to apply the knowledge acquired to independently evaluate the choice of technique and the reliability of the results

• **Communication skills**
Ability to express the key elements of the topics covered in an adequate language, making adequate correlations for understanding the questions posed and for managing the answers.

• **Ability to learn**
Ability to update and finalize their knowledge on increasingly advanced methods for a correct food analysis.

In itinere tests: oral exam
Final exam: oral exam

Bibliography:

Holler, Skoog, Leary: Chimica Analitica Strumentale (2^ ed)
Cappelli, Vannucci: Chimica degli Alimenti, Zanichelli