| **General information** | | |
|---|---|---|
| Academic subject | Analytical methods of food (I.C. Innovative technologies in food processing integrated with Analitical methods of food) | |
| Degree course | Biotechnologies for the quality and the healthiness of nutrition (LM-7) | |
| Academic Year | First | |
| European Credit Transfer and Accumulation System (ECTS) | | 3 |
| Language | Italian | |
| Academic calendar (starting and ending date) | March 7, 2022 – June 17, 2022 | |
| Attendance | Optional | |

| **Professor/ Lecturer** | |
|---|---|
| Name and Surname | Valeria D'Orazio |
| E-mail | valeria.dorazio@uniba.it |
| Telephone | + 39 080 544 3166 |
| Department and address | Campus di Via E. Orabona, 4 – Plexus of Agriculture - Dept. of Soil, Plant and Food Sciences (DiSSPA) – Division of Chemistry and Biochemistry; floor 1, room 6. |
| Virtual headquarters | Microsoft Teams |
| Tutoring (time and day) | From Monday to Friday, at the teacher's office and / or on the Teams platform (team code: q6pwp97), by appointment to be agreed by e-mail |

| ***Syllabus*** | |
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| **Learning Objectives** | The course aims to provide students with in-depth knowledge on the methods of analysis of foods of animal and plant origin for the search for both beneficial substances and metabolites and contaminants of various origins |
| **Course prerequisites** | Fundamentals of food chemistry |
| **Contents** | Introduction. General information on the analytical process. Sampling, sample processing and analysis. Relative and absolute methods of analysis.<br>Characteristics of an analytical method. Extraction of a sample.<br>Qualitative and quantitative analysis.<br>Spectroscopic methods: interaction of electromagnetic radiation and matter.<br>UV-Vis spectroscopy. Fluorescence spectroscopy. Instrumentation.<br>Chromatographic methods. General principles and chromatographic techniques.<br>Electrophoresis.<br>Analytical applications in the food sector. |
| **Books and bibliography** | Holler, Skoog, Leary: Chimica Analitica Strumentale (2^ ed)<br>Cappelli, Vannucci: Chimica degli Alimenti, Zanichelli |
| **Additional materials** | |

| **Work schedule** | |
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| Total | Lectures | Hands on (Laboratory, working groups, seminars, field trips) | Out-of-class study hours/ Self-study hours |
|---|---|---|---|
| Hours | | | |
| 75 | 24 | | 51 |
| ECTS | | | |
| 3 | 3 | | |

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| **Teaching strategy** | |
| | The topics of the course will be treated with the help of PowerPoint presentations |
| **Expected learning outcomes** | |
| **Knowledge and understanding on:** | o The students will acquire the knowledge of the different analytical techniques in the food field |
| **Applying knowledge and understanding on:** | o The skills acquired with the course will allow students to apply the knowledge acquired as a function of the different food matrices |
| **Soft skills** | • *Making informed judgments and choices*<br>o Students will be able to apply the acquired knowledge to independently assess the choice of technique and the reliability of the results<br>• *Communicating knowledge and understanding*<br>o 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.<br>• *Capacities to continue learning*<br>o Ability to update and finalize their knowledge on increasingly advanced methods for a correct analysis of foods. |

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| **Assessment and feedback** | |
| Methods of assessment | The exam consists of an oral test on the topics developed during the theoretical and theoretical-practical lesson hours in the classroom |
| Evaluation criteria | • *Knowledge and understanding*<br>o The student will have to know the main analytical techniques in the field of food analysis<br>• *Applying knowledge and understanding*<br>o The student must be able to choose the most suitable analytical technique according to the different food matrices<br>• *Autonomy of judgment*<br>o The student must be able to independently assess the quality of the chosen technique and the reliability of the results<br>• *Communicating knowledge and understanding*<br>o The student must be able to critically propose and discuss the data of his own experimentation with interlocutors of similar and different professional backgrounds<br>• *Communication skills* |

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| | |
|---|---|
| | o Ability to compare their knowledge with colleagues in the field of food analysis<br>• *Capacities to continue learning*<br>o The student will have to demonstrate that he has acquired sufficient learning skills and continuous deepening of research topics and current problems concerning the sector of food quality and safety |
| Criteria for assessment and attribution of the final mark | The final grade is awarded out of thirty. The exam is passed when the grade is greater than or equal to 18. The final mark is attributed also considering the evaluation of the module which is an integral part of the I.C. |
| **Additional information** | |
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