

Syllabus

Course Description

Course Title	Advanced sample preparation techniques and analysis of food contaminants
Course Code	44747
Course Title Additional	
Scientific-Disciplinary Sector	CHEM-07/B
Language	English
Degree Course	Master in Food Sciences for Innovation and Authenticity
Other Degree Courses (Loaned)	
Lecturers	Prof. - Ass. Sabrina Moret, Sabrina.Moret@unibz.it https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/43386
Teaching Assistant	
Semester	First semester
Course Year/s	2
CP	6
Teaching Hours	50
Lab Hours	10
Individual Study Hours	90
Planned Office Hours	18
Contents Summary	-
Course Topics	The course gives a general overview of scientific contents, but is also designed for acquiring professional skills and knowledge on the following educational objectives: · Principle, parameter optimization and basic applications of innovative sample preparation techniques: supercritical fluid extraction (SFE), pressurized liquid extraction (PLE), microwave assisted extraction (MAE), membrane-based extraction, solid phase extraction (SPE), solid phase micro extraction (SPME), stir bar

	sorptive extraction (SBSE), headspace sorptive extraction (HSSE), headspace techniques, purge and trap. · Principle, advantages and application of hyphenated, multidimensional chromatographic techniques: coupled LC-LC and LC-LC-GC, LC-GC and GCxGC. · Chemical properties, origin, toxicity, distribution and analytical determination of the main organic contaminants in foods: PAHs, PCBs, dioxins, mineral oils, mycotoxins and residues of pesticides, antibiotics, anabolizing substances, and hormones.
Keywords	
Recommended Prerequisites	
Propaedeutic Courses	
Teaching Format	
Mandatory Attendance	No
Specific Educational Objectives and Learning Outcomes	· Knowledge and understanding of principles and basic applications of advanced sample preparation techniques and coupled chromatographic techniques for the analysis of trace contaminants in food. · Knowledge and understanding of main classes of organic contaminants in food (focusing on toxicity aspects, European legislation, and analytical techniques for their determination). · Acquire the skills to select and apply proper sample preparation methods and to understand and communicate health risks due to the presence of food contaminants · Acquire appropriate terminology and learning skills
Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	Written examination to ascertain the achievement of the expected learning outcomes
Evaluation Criteria	Clarity of answers, mastery of language (also with respect to teaching language), ability to establish relationships between topics
Required Readings	Lecture notes
Supplementary Readings	- Moret, G. Purcaro, L.S. Conte, Il campione per l'analisi chimica,

	Springer-Verlag Italia, Milano (2014) - Dean J.R., Extraction techniques in analytical science; Wiley (2009). - Mondello, Lewis and Bartle, Multidimensional Chromatography, Wiley and Sons, New York (2002). - Food Chemical safety Vol. 1: Contaminants, edited by David Watson, Published by Woodhead Publishing (2001)
Further Information	
Sustainable Development Goals (SDGs)	