

Syllabus

Course Description

Course Title	Risk Assessment of chemical compounds
Course Code	44767
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. Chiara Dall'Asta, https://www.unibz.it/en/faculties/agricultural-environmental-food-sciences/academic-staff/person/55166
Teaching Assistant	
Semester	First semester
Course Year/s	2
CP	6
Teaching Hours	60
Lab Hours	-
Individual Study Hours	90
Planned Office Hours	18
Contents Summary	-
Course Topics	The course introduces the principles of toxicological chemistry and chemical risk assessment applied to food contaminants. Naturally occurring and synthetic contaminants are addressed, focusing on sources, fate along the food chain, toxicological mechanisms, and impact on human health. The course covers hazard identification, analytical strategies for contaminant detection, and data interpretation for exposure and risk characterisation. Selected case studies from scientific literature and documented food safety events are

	discussed to connect analytical data, uncertainty management, and decision-making.
Keywords	
Recommended Prerequisites	Basic knowledge of food chemistry and analytical chemistry. Fundamental notions of biochemistry and physiology are recommended but not mandatory.
Propaedeutic Courses	
Teaching Format	Frontal lectures supported by slides, practical exercises on data interpretation and exposure assessment, and guided discussion of case studies from literature and real food safety events.
Mandatory Attendance	No
Specific Educational Objectives and Learning Outcomes	Knowledge and understanding At the end of the course, the student will know the main classes of chemical contaminants in food (natural and anthropogenic) and the factors influencing their occurrence, transformation and stability along the food chain. The student will understand the toxicological basis of dose–response relationships, ADME processes, and the distinction between hazard and risk. The student will know the principles and steps of chemical risk assessment and the role of uncertainty, as well as the main analytical approaches used in food safety and their limitations. Applying knowledge and understanding The student will be able to design a basic risk assessment workflow for a selected contaminant, identify data needs and assumptions, interpret occurrence and analytical data (including left-censored data), and apply introductory modelling approaches for exposure assessment and risk characterisation. Making judgments The student will be able to critically evaluate scientific literature and reports, formulate reasoned conclusions under uncertainty, and assess scientific and regulatory implications of food safety decisions. Communication skills The student will be able to communicate risk assessment results to specialist and non-specialist audiences and produce short technical

	or scientific reports in Italian and/or English. Learning skills The student will be able to autonomously update their knowledge in food chemical safety and identify pathways for further specialization.
Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	The final assessment consists of two components: 1. Written examination (30 minutes): * 30 multiple-choice questions. * A minimum score of 18/30 is required to pass. * Objective: to assess the theoretical knowledge acquired during the course. 2. Oral examination, reserved for students who pass the written examination, aimed at assessing their ability to interpret data and apply critical reasoning. Final grade composition: * 40% written examination * 60% oral examination
Evaluation Criteria	
Required Readings	Suggested Book: Belitz, H.-D., Grosch, W., Schieberle, P. FOODCHEMISTRY; Springer Ed. ISBN 978-3-540-69934-7 Slides, report, and scientific literature will be provided.
Supplementary Readings	
Further Information	Teaching materials are provided through the institutional platform. The lecturer is available for clarification during and after classes, by appointment or online.
Sustainable Development Goals (SDGs)	Good health and well-being