



MICROBIOLOGICAL ANALYSIS	
Enrollment year	2021/2022
Academic year	2021/2022
Regulations	DM270
Academic discipline	BIO/19 (GENERAL MICROBIOLOGY)
Department	DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI"
Course	EXPERIMENTAL AND APPLIED BIOLOGY
Curriculum	Bioanalisi
Year of study	1°
Period	2nd semester (01/03/2022 - 14/06/2022)
ECTS	9
Lesson hours	72 lesson hours
Language	Italian
Activity type	WRITTEN TEST
Teacher	PASCA MARIA ROSALIA (titolare) - 6 ECTS DEGIACOMI GIULIA - 3 ECTS
Prerequisites	Knowledge of General Microbiology provided by the Degree Courses in Biological Sciences and in Biotechnology.
Learning outcomes	<p>Knowledge of methodologies for microbiological control of food, water, and health products.</p> <p>Knowledge of the characteristics of the main pathogen microorganisms (bacteria and viruses) in the clinical field and of the techniques that allow their identification.</p>
Course contents	Part 1. Intrinsic and extrinsic parameters that affect microbial growth and survival in foods. Determining microorganisms and/or their products: culture, microscopic, and sampling methods; chemical, biological, and physical methods; bioassays and related methods. Foodborne diseases.

	<p>Examples of food analyses (meat, eggs, milk). Microbial analysis of cosmetics. Water microbiology. Monitoring of air and surface microbial quality. Traceability of genetically modified organisms.</p> <p>Part 2. Bacterial and viral pathogens of humans: pathogenesis and clinical features. Antibiotics and vaccines. Main conventional diagnostic techniques: staining; processing of different clinical specimens (urine, blood, various swabs, respiratory samples, cerebrospinal fluid, feces, etc.); physiological, serological and antigenic tests used to identify the bacteria; antibiogram; etc. Molecular diagnostic techniques used to detect non-culturable pathogenic bacteria and viruses.</p>
Teaching methods	The course is divided into frontal lessons.
Recommended or required readings	<ul style="list-style-type: none"> - La Placa M. principi di microbiologia medica. XIV edizione. Edises. 2018. - Madigan MT, Martinko JM, Stahl DA, Clark DP. Microbiologia biomedica 3. BROCK. 2012 Pearson. - G. Antonelli, M. Clementi, G. Pozzi, G.M. Rossolini. 2008. Principi di Microbiologia Medica. Casa Editrice Ambrosiana. Milano - Barbieri P, Bestetti G, Galli E, Zannoni D. Microbiologia ambientale. Casa editrice ambrosiana, 2009. -Galli Volonterio A. Microbiologia degli alimenti. Casa editrice ambrosiana. Madigan MT, Bender KS, Buckley DH, Sattley WM, Stahl DA. Brock Biologia dei Microrganismi, XVI edizioni, 2022, Pearson. - Jay JM, Loessner MJ, Golden DA. Microbiologia degli alimenti. Hoepli, 2009. - Didactic material provided by teachers (Kiro web site).
Assessment methods	The examination is written, with 7 open questions to verify the study and the knowledge of the student. The duration of the test is 2h 30'.
Further information	The examination is written, with 7 open questions to verify the study and the knowledge of the student. The duration of the test is 2h 30'.
Sustainable development goals - Agenda 2030	