



## MICROBIOLOGICAL ANALYSIS

<b>Enrollment year</b>	2021/2022
<b>Academic year</b>	2021/2022
<b>Regulations</b>	DM270
<b>Academic discipline</b>	BIO/19 (GENERAL MICROBIOLOGY)
<b>Department</b>	DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI"
<b>Course</b>	EXPERIMENTAL AND APPLIED BIOLOGY
<b>Curriculum</b>	Bioanalisi
<b>Year of study</b>	1°
<b>Period</b>	2nd semester (01/03/2022 - 14/06/2022)
<b>ECTS</b>	9
<b>Lesson hours</b>	72 lesson hours
<b>Language</b>	Italian
<b>Activity type</b>	WRITTEN TEST
<b>Teacher</b>	PASCA MARIA ROSALIA (titolare) - 6 ECTS DEGIACOMI GIULIA - 3 ECTS
<b>Prerequisites</b>	Knowledge of General Microbiology provided by the Degree Courses in Biological Sciences and in Biotechnology.
<b>Learning outcomes</b>	<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>
<b>Course contents</b>	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>
<p><b>Teaching methods</b></p>	<p>The course is divided into frontal lessons.</p>
<p><b>Recommended or required readings</b></p>	<ul style="list-style-type: none"> <li>- La Placa M. principi di microbiologia medica. XIV edizione. Edises. 2018.</li> <li>- Madigan MT, Martinko JM, Stahl DA, Clark DP. Microbiologia biomedica 3. BROCK. 2012 Pearson.</li> <li>- G. Antonelli, M. Clementi, G. Pozzi, G.M. Rossolini. 2008. Principi di Microbiologia Medica. Casa Editrice Ambrosiana. Milano</li> <li>- Barbieri P, Bestetti G, Galli E, Zannoni D. Microbiologia ambientale. Casa editrice ambrosiana, 2009.</li> <li>-Galli Volonterio A. Microbiologia degli alimenti. Casa editrice ambrosiana.</li> <li>Madigan MT, Bender KS, Buckley DH, Sattley WM, Stahl DA. Brock Biologia dei Microrganismi, XVI edizioni, 2022, Pearson.</li> <li>- Jay JM, Loessner MJ, Golden DA. Microbiologia degli alimenti. Hoepli, 2009.</li> <li>- Didactic material provided by teachers (Kiro web site).</li> </ul>
<p><b>Assessment methods</b></p>	<p>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'.</p>
<p><b>Further information</b></p>	<p>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'.</p>
<p><b>Sustainable development goals - Agenda 2030</b></p>	<p>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'.  <a href="#">The goals</a></p>