



### APPLIED MICROBIOLOGY

<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>	ADVANCED BIOTECHNOLOGY
<b>Curriculum</b>	PERCORSO COMUNE
<b>Year of study</b>	1°
<b>Period</b>	1st semester (01/10/2021 - 14/01/2022)
<b>ECTS</b>	6
<b>Lesson hours</b>	48 lesson hours
<b>Language</b>	Italian
<b>Activity type</b>	ORAL TEST
<b>Teacher</b>	DE ROSSI EDDA (titolare) - 6 ECTS
<b>Prerequisites</b>	Basic knowledge of General Microbiology, Genetics, and Molecular Biology.
<b>Learning outcomes</b>	To offer knowledge and skills in areas of structure functioning and application of microorganisms in fermentation processes; to equip students understand the relevance of applied microbiology to healthcare, food, agriculture, and environmental protection.
<b>Course contents</b>	Microorganisms as cell factories. Screening for productive strains and strain improvement. Production of amino acids and antibiotics: from laboratory bench to industrial production. Vaccines: traditional and recombinant vaccines; reverse vaccinology; structural vaccinology; system vaccinology; production of vaccines. Molecular diagnostics. Environmental biotechnology: bioremediation and wastewater treatment. Cultural heritage: processes of biodeterioration and methodologies of

	<p>bioconservation. Microbial biosensors. Microorganisms and production of biofuels. Application of bacteriophages.</p> <p>Some of the topics covered in the course are in line with the UN 2030 Agenda for sustainable development - Objective 3. Ensuring health and well-being for all and for all ages.</p>
<b>Teaching methods</b>	Lectures.
<b>Reccomended or required readings</b>	<ul style="list-style-type: none"> <li>- Glick BR, Pasternak JJ, Patten CL. Molecular Biotechnology: Principles and Applications of Recombinant DNA, 4th Edition. ASM Press, Washington. 2010.</li> <li>- Donadio S, Marino G. Biotecnologie Microbiche. Casa Editrice Ambrosiana, Milano. 2008.</li> </ul>
<b>Assessment methods</b>	Oral examination.
<b>Further information</b>	Oral examination.
<b>Sustainable development goals - Agenda 2030</b>	<a href="#">The goals</a>