



APPLIED MICROBIOLOGY	
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	ADVANCED BIOTECHNOLOGY
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	1st semester (01/10/2021 - 14/01/2022)
ECTS	6
Lesson hours	48 lesson hours
Language	Italian
Activity type	ORAL TEST
Teacher	DE ROSSI EDDA (titolare) - 6 ECTS
Prerequisites	Basic knowledge of General Microbiology, Genetics, and Molecular Biology.
Learning outcomes	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.
Course contents	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>
Teaching methods	Lectures.
Reccomended or required readings	<ul style="list-style-type: none"> - Glick BR, Pasternak JJ, Patten CL. Molecular Biotechnology: Principles and Applications of Recombinant DNA, 4th Edition. ASM Press, Washington. 2010. - Donadio S, Marino G. Biotecnologie Microbiche. Casa Editrice Ambrosiana, Milano. 2008.
Assessment methods	Oral examination.
Further information	Oral examination.
Sustainable development goals - Agenda 2030	\$ibl legenda sviluppo sostenibile