



## MICROBIOLOGY TEACHING SCHEDULE

<b>Degree Course:</b>	<b>Biotechnologies</b>
<b>Teaching Denomination:</b>	<b>Microbiology</b>
<b>Credits Number:</b>	<b>6</b>
<b>Year/Semester:</b>	<b>II/I</b>
<b>Holder Professor:</b>	<b>Pagliarulo Caterina</b>
<b>PhD students / research fellows who carry out didactic activities to course support:</b>	<b>Sateriale Daniela</b>
<b>Reception hours:</b>	<b>13:00-15:00 wednesday and thursday</b>
<b>Address:</b>	<b>via Port'Arsa 11, Benevento</b>

### COURSE PRESENTATION:

Microbiology course is dedicated to the illustration and analysis of the structural components and functions of bacterial cells. During the course, the microbial metabolism topic will be addressed, highlighting the wide microbial metabolic capacity and versatility which is the basis of many biotechnological applications. Finally, the course aims is to provide the students, with the help of laboratory practicals, the necessary methodological skills in fundamental techniques for microbiology: staining, growth, isolation and identification of microorganisms.

### TRAINING AIMS

- Knowledge: Knowledge of morphological and structural characteristics, and physiological and metabolic characteristics of microorganisms. Understanding the topics of prokaryotic genetics, basis of the microbial genome diversity and plasticity. Knowledge of host-parasite interactions and the microorganisms-environment interactions. Knowledge of basic microbiological techniques.
- Skills: Acquiring the theoretical training needed for critical analysis of the fundamental topics of microbiology. Acquiring the methodological skills needed to microbial growth, isolation and identification.

## **REQUIRED PREREQUISITES**

Basic chemical and biological disciplines

## **LESSONS FREQUENCY**

The course frequency is strongly recommended in order to deal, with appropriate theoretical training, the practical experience expected for the didactic laboratory of microbiology. During the laboratory test, the student will face staining and microscopic techniques as well as microbiology culture techniques.

## **COURSE CONTENTS**

Introduction to Microbiology. The prokaryotic cell: structure and functions. Microbiological techniques. Bacterial growth. Microbial metabolism. Genetics and bacterial genomics. Diversity and microbial taxonomy. Antimicrobial agents. Antibiotic resistance. Virology elements.

## **DIDACTIC METHODS**

The course includes 5 CFUs dedicated to frontal lessons and 1 CFU dedicated to the activities of the microbiology didactic laboratory.

## **REFERENCE TEXTS**

Prescott et al. Microbiology. McGraw-Hill Editor

Madigan et al. Brock Biology of microorganisms. Pearson Editor

Perry et al. Microbiology Zanichelli Editor

PDF presentations on frontal lessons topics and some videos or reviews on particular topics will be provided through the download area of web portal DST Unisannio.

## **PROFIT EXAMINATION**

The final exam is a written test followed by an oral test. As far as the oral test, fundamental evaluation elements will be: the relevance of responses to the questions asked, the contents quality, the ability to link with other topics covered by the microbiology program as well as other biological disciplines, the ability to portray examples graphically, the technical language property and the overall expressive capacity of the student.

## **EXAMS CALENDAR**

link

## EXAMS BOOKING

[link](#)

## SYLLABUS

### MICROBIOLOGY SYLLABUS

Topics	hours	References	Lesson typology
Introduction to Microbiology. The prokaryotic cell: structure and functions.	8	<ul style="list-style-type: none"><li>• Prescott et al. Microbiology McGraw-Hill Editor</li><li>• Madigan et al. Brock Biology of microorganisms. Pearson Editors</li></ul>	Frontal
Microbial motility. Bacterial sporulation and germination	4	<ul style="list-style-type: none"><li>• Prescott et al. Microbiology McGraw-Hill Editor</li><li>• Madigan et al. Brock Biology of microorganisms. Pearson Editors</li></ul>	Frontal
Microbiological techniques: microscopy, disinfection, sterilization, pasteurization	6	<ul style="list-style-type: none"><li>• Prescott et al. Microbiology McGraw-Hill Editor</li><li>• Madigan et al. Brock Biology of microorganisms. Pearson Editors</li></ul>	Frontal + laboratory

<p>Microbiological techniques: staining, microbial growth, isolation and identification</p>	<p>8</p>	<ul style="list-style-type: none"> <li>• Prescott et al. Microbiology McGraw-Hill Editor</li> <li>• Madigan et al. Brock Biology of microorganisms. Pearson Editors</li> </ul>	<p>Frontal + laboratory</p>
<p>Microbial nutrition and Metabolism</p>	<p>8</p>	<ul style="list-style-type: none"> <li>• Prescott et al. Microbiology McGraw-Hill Editor</li> <li>• Madigan et al. Brock Biology of microorganisms. Pearson Editors</li> </ul>	<p>Frontal</p>
<p>Genetics and bacterial genomics</p>	<p>6</p>	<ul style="list-style-type: none"> <li>• Prescott et al. Microbiology McGraw-Hill Editor</li> <li>• Madigan et al. Brock Biology of microorganisms. Pearson Editors</li> </ul>	<p>Frontal + laboratory</p>
<p>Antimicrobial agents. Antibiotic sensitivity testing</p>	<p>6</p>	<ul style="list-style-type: none"> <li>• Prescott et al. Microbiology McGraw-Hill Editor</li> <li>• Madigan et al. Brock Biology of microorganisms.</li> </ul>	<p>Frontal + laboratory</p>

		Pearson Editors	
Virology elements	2	<ul style="list-style-type: none"> <li>• Prescott et al. Microbiology McGraw-Hill Editor</li> <li>• Madigan et al. Brock Biology of microorganisms. Pearson Editors</li> </ul>	Frontal