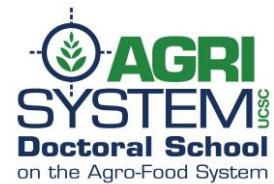




UNIVERSITÀ  
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## BENEFICIAL MICROORGANISMS IN THE AGRI-FOOD SYSTEM

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### Course Aims

The objective of the course is to provide an understanding of the roles played by microorganisms in plant and animal productions while sustaining and improving the quality of agro-ecosystems.

### Methodology

The course will be developed through lectures, analyses of case-studies and discussions with students. Students will be required to attend the course and to work autonomously in small groups. Students' grades will be based on their class work and participation. The course will be taught in English.

### Course Description

Links between ecosystems services and agricultural production will be provided, highlighting the role played by microorganisms in ensuring both. At soil level, insights will be given about the involvement of microorganisms in biogeochemical cycles, soil organic matter dynamics, greenhouse gases emissions, xenobiotic biodegradation, source or suppressions of plants diseases. Plant aspects will consider the pivotal role played by the rhizosphere, the soil-plant-microbes tripartite system at the root of soil fertility, and insights will also be given to the phyllosphere microbiota and its relevance for plant health and as a reservoir of useful microorganisms. Students will also learn about the role of intestinal microbiota in promoting the health and productivity of livestock. Finally, the course will also cover practical aspects related to the increasing application of microorganisms in agriculture, with a focus on plant growth-promoting microbial biostimulants and probiotics.

### Recommended Texts

Reading materials will be provided (posted on the web) during the class