General Information	
Academic subject	Environmental microbiology (Course Environmental Restoration)
Degree course	Sustainable Management of the Mediterranean Countryside
Curriculum	
ECTS credits	3 ECTS
Compulsory attendance	No
Language	Italian

Subject teacher	Name Surname	Mail address	SSD
	Maria Calasso	maria.calasso@uniba.it	AGR/16

ECTS credits details			
Basic teaching activities	3 ECTS: 2 ECTS Lectures + 1 ECTS Laboratory and field classes		

Class schedule	
Period	1st semester
Year	Second
Type of class	Lecture- workshops

Time management	
Hours	75
In-class study hours	30
Out-of-class study hours	45

Academic calendar	
Class begins	2nd October, 2017
Class ends	26th January, 2018

Syllabus	
Prerequisites/requirements	Principles of biochemistry
Expected learning outcomes	*Knowledge and understanding* o Knowledge of the microorganisms, their most important environmental properties and their applications in support of the productivity and sustainability of the agri-forestry environment. *Applying knowledge and understanding* o Ability to identify the main microbiological procedures to monitor ecosystems. *Making informed judgements and choices* o Ability to orient the search of biotechnological solutions using microorganisms suitable to monitoring the productivity and sustainability of the agri-forestry environment *Communicating knowledge and understanding*

	o Ability to communicate the use of microorganisms in the productivity and sustainability management systems of the agri-forestry environments. *Capacities to continue learning* o Ability to learn the methods needed for better control and use of microrganisms in agro-forest systems.
Contents	Overview on environmental microbiology Principles of prokaryotic and eukaryotic cell biology Principles of microbial taxonomy and microbial cell physiology Principles and importance of material and energy exchange between microorganisms and environment Virus. Phages. Basic methods in microbiology Microbial interactions Monitoring microorganisms in a ecosystem Microbial biotechnologies for controlling pollution
Course program	
Bibliography	• Lecture notes and educational supplies provided during the course (will be provided by means of online platforms, i.e.: Edmodo)
Notes	
Teaching methods	• Lectures will be presented through PC assisted tools (PowerPoint, video) and field and laboratory classes.
Assessment methods (indicate at least the type written, oral, other)	The students attending the lectures may have a middle-term preliminary exam, consisting of a written test, relative to the first part of the program, which will be considered valid for a year. The results of this exam will concur to the final evaluation. The exam consists of an oral dissertation on the topics developed during the theoretical and theoretical-practical lectures in the classroom and in the laboratory / production farms, as reported in the Academic Regulations for the Master Degree in Sustainable Management of the Mediterranean Countryside and in the study plan (Annex A). The evaluation of the preparation of the student occurs based on established criteria, as detailed in Annex A of the Academic Regulations for the Degree in Sustainable Management of the Mediterranean Countryside. For students who have done the middle-term preliminary exam, the evaluation of the final exam will be expressed in thirtieths.
Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are. o o Introduce an operational approach necessary for the use of microorganisms in agro-forestry systems	*Knowledge and understanding* o Describe the main properties and applications of environmental related microrganisms in support of the productivity and sustainability of the agri-forestry environment *Applying knowledge and understanding* o Describe the main microbiological to monitor ecosystems *Making informed judgements and choices* o Research methodologies using microorganisms suitable for monitoring the productivity and sustainability of the agri-forestry environment *Communicating knowledge and understanding*

	o Describe the use of microrganisms in productivity and sustainability management of the agri-forestry environment *Capacities to continue learning* o *Introduce an operational approach for the use of microorganisms in agro-forestry systems*
Further information	Visiting hours: from Monday to Thursday 9.00 a.m. – 17.30 p.m. by appointment only