

- Faculté des sciences
- www.unine.ch/sciences

### Microbial ecology (3BL2238)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
<b>Master en biologie</b>	<b>Cours: 30 pg</b>	Voir ci-dessous	3

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

#### Période d'enseignement:

- Semestre Printemps

#### Equipe enseignante

Pilar Junier & Saskia Bindschedler

#### Contenu

This teaching will focus on presenting modern approaches in microbial ecology and recent research in this field, including the research performed in our laboratory in the field of sustainable agriculture. This will be combined to a practical work consisting in elaborating the conceptual framework of a specific research area, identifying research questions & hypotheses and translating this into an experimental plan. Finally, the writing of a report will allow synthesizing the work carried out during the practical part. In addition, the students will participate to the workshop on "Visions of Sustainable Agriculture", which complements the content of the lecture and presents a concrete example of the application of microbial ecology in the context of sustainability.

#### Forme de l'évaluation

The evaluation of this teaching is based on a graded continuous assessment, consisting of the following points:

##### 1. Production of a summary on one aspect of the theoretical lectures: 20%

This summary consists in an individual summary of maximum 1000 words. The topic has to be selected based on one aspect presented during the theoretical lectures and should be validated by the teachers up to 09.03.2020 (third week of lectures). The deadline to handle this document is 23.03.2020.

##### 2. Production of a literature summary (group work): 20%

Work by groups of students. Starting from a selection of review articles provided by the teachers, each group of student will select a different article that will be used as background to discuss a specific research area in the field of microbial ecology. In each group, each student should deepen the knowledge on one of the aspects presented in the review and provide a summary of recent research (1000 words) to eventually create a common group document in the form of a mini scientific review to be submitted by 18.05.2020.

##### 3. Active participation to the discussions in the practical part: 20%

##### 4. Final report on the practical part: 40%

Each student will have to provide an individual report in the form of a brief research proposal (examples will be provided during the lectures). The content of this report will be defined during the practical part of this teaching. The sections that should appear in the report are: Introduction, with question and hypotheses; Experimental plan; Expected results; Reference list. The report should not be more than 3 pages (Arial font, size 11) without figures and references. The deadline to hand out the report is 29.05.2020.

Documents described in 1, 2, and 4 should be sent per e-mail as a pdf file to both teachers.

In case of an insufficient evaluation, an updated version of the report will be required together with a 30 minutes oral presentation (15 minutes presentation and 15 minutes questions) that will allow assessing the extent of the candidate's knowledge on the topics developed in this teaching. After the publication of results, the student has the responsibility to contact the teacher in advance in order to define a date to hand out the report as well as a date for the oral presentation. The oral presentation should take place within one week after the date by which the report has been handed out. The oral evaluation does not necessary need to take place within an exam session, but it should be organized at the latest 5 days before the end of the following exam session.

#### Documentation

Review articles will be provided to the students and specific scientific articles will be discussed during the lectures.

#### Pré-requis

Basic concepts in microbiology of a Bachelor level

- Faculté des sciences
- [www.unine.ch/sciences](http://www.unine.ch/sciences)

## **Microbial ecology (3BL2238)**

### **Forme de l'enseignement**

Lectures, seminars, practical work, and discussion of scientific articles

### **Objectifs d'apprentissage**

Au terme de la formation l'étudiant-e doit être capable de :

- Discuss current topics in microbial ecology in the context of sustainable agriculture
- Outline a research question on the topic
- Develop a research project
- Interpret recent scientific information in the field
- Illustrate methods discussed in the theoretical lectures for the accomplishment of a scientific project.
- Identify a scientific goal
- Provide critical feedback in the projects of peers
- Establish a scientific hypothesis

### **Compétences transférables**

- Explain a scientific question
- Translate theoretical knowledge into practice
- Review scientific literature
- Invent a novel idea