

# UNIGE 14B026: Molecular Microbial Ecology

Sunday 2<sup>nd</sup> to Friday 7<sup>th</sup> August 2020, Cadagno, Ticino

4 ECTS. Requirement: report until 30<sup>st</sup> Sept 2020. Costs: 250 CHF p.P.

Registration and further information: [andreas.bruder@supsi.ch](mailto:andreas.bruder@supsi.ch)

The course is limited to 12 students for practical reasons



## Topics

**Techniques for investigations into taxonomy and ecology of periphyton and fungal communities in alpine streams. Classical techniques are based on microscopy but molecular techniques are currently being developed and becoming available.**

**Periphyton:** communities of microscopic algae and cyanobacteria growing on the substrate. Very diverse and performing important ecosystem functions as primary producers.

**Freshwater fungi:** diverse communities of microscopic fungi developing in dead organic matter and performing important ecosystem functions as decomposers.

## Course content

**Fieldwork:** different techniques for sampling of periphyton (mainly Diatoms) and fungi from various streams and lakes of the Piora valley and their physicochemical characterization (2 days).

**Labwork:** sample preparation, microscopic identification, introduction to isolation and culture techniques (2 days). Standard DNA-sequencing techniques are not part of the course.

**Data analysis:** interpretation of diversity and community composition with knowledge of the physicochemical conditions of the streams and lakes, and of the scientific literature.

**Seminars:** introduction to the ecological background of periphyton and fungi in streams. Introduction to molecular techniques and their use in taxonomic studies of both organism groups.

## The team

**Dr. Andreas Bruder (SUPSI, Bellinzona):** stream ecologist, research focus on fungal and invertebrate communities in streams and on the consequences of anthropogenic impacts on stream ecosystem functioning.



**Dr. Monica Tolotti (FEM, St. Michele all'Adige):** freshwater ecologist, research focus on alpine ecosystems and the consequences of climate-driven changes to microbial communities (particularly diatoms).

**Dr. Aldo Marchetto (IRSA, Pallanza):** freshwater ecologist, research focus on climate-driven changes to alpine lakes and their phytoplankton and periphyton communities.



**Dr. Isabel Fernandes (University of Minho, Braga):** stream ecologist, research focus on the climatic and anthropogenic impacts on fungal biodiversity and stream ecosystem functioning and on the development of molecular techniques to assess fungal biodiversity.

## Location

**Center for Alpine Biology (CBA), Val Piora in the Gotthard-region, Switzerland (ca. 2000 m.a.s.l.)**

The CBA has excellent laboratory and housing facilities. It's located in the beautiful Val Piora, which is famous for its particular geology and consequently very diverse biotic communities. Val Piora has various types of alpine freshwater ecosystems, which we will visit during the course. CBA is run as a research and teaching facility by a consortium composed of SUPSI, UNIGE, UZH and the Cantonal Administration of Ticino. More information: [www.cadagno.ch](http://www.cadagno.ch)