

Fieldcourse UNIGE 14B026 and UZH BIO307

## Microbial ecology of alpine freshwater ecosystems

Sunday 6<sup>th</sup> to Friday 11<sup>th</sup> August 2023, Cadagno, Ticino

3 ECTS. Requirement: report until 16<sup>st</sup> Sept 2023. Costs: 200 CHF p.P.

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

The course is limited to 12 students



UNIVERSITÉ  
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### Topics

**Techniques for investigations into taxonomy, biodiversity and ecology of periphyton and fungal communities in alpine streams.**

**Periphyton:** communities of microscopic algae and cyanobacteria growing on various substrates. A very diverse group that performs important ecosystem functions as primary producers.

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

### Course content

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

**Labwork:** sample preparation, microscopic identification, introduction to dichotomous keys for both organism groups (2 days).

**Data analysis:** analysis and 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 taxonomy and ecological applications.

### The team

**Dr. Andreas Bruder (SUPSI, Mendrisio):** 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.

Course responsible at UNIGE: Prof. Mauro Tonolla, at UZH: Prof. Florian Altermatt

### 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 foundation composed of SUPSI, UNIGE, UZH and the Cantonal Administration of Ticino. More information: [www.cadagno.ch](http://www.cadagno.ch)