

IBIOL Seminar Series



27 May 2026



12:15-13:30 PM



F200

Come for cool science,
 stay for cookies and
 coffee!



Baptiste Bovay

How do arthropod predators regulate herbivory in alpine environments?

Spiders and other predators consume herbivores and help to reduce the herbivory pressure in many ecosystems. However, consumption is not the only way by which predators can affect lower trophic levels... Here, by combining a field experiment along an elevation gradient in the Alps with climate chamber experiments, I explored how the presence of predators (spiders and large grasshoppers) shapes the behaviour of herbivores (smaller orthopterans) and how it finally affects plant communities. My preliminary results indeed show that predator-herbivore interactions are more interesting and complex than we thought.

TALK n°1



Juan Traine

Selecting maize varieties for improving odor-based, real-time detection of the fall armyworm

When plants are attacked by insect herbivores, they often respond by emitting herbivore-induced plant volatiles (HIPVs), which can be directly toxic or repellent to the herbivore, warn neighbouring plants of the attack and even attract an herbivore's natural enemies. These volatiles may also constitute reliable cues for odor sensors, allowing them to detect herbivore-infested plants in agricultural fields, and enabling targeted control strategies. However, the strength and composition of HIPV emissions may vary between plant genotypes, affecting the reliability of odor-based pest detection. To test this, we collected and identified HIPVs induced by a pest, the fall armyworm (FAW, *Spodoptera frugiperda*), in 26 Swiss maize varieties. We selected three high-emitting and three low-emitting varieties and measured their emissions with a Proton Transfer Reaction Time of Flight Mass Spectrometer (PTR-ToF-MS) that can detect volatiles in real time. High-emitting varieties, when FAW-induced, were more easily detected and separated from undamaged controls. This highlights the importance of choosing the right plant varieties to guarantee the success of odor-based pest detection.

TALK n°2



Mathilda Fatton

Can we detect extra-terrestrial microbes?: Winogradsky columns as model ecosystems to investigate how biosignatures change according to microbial metabolisms

Microbial life developed everywhere on Earth, so what about microorganisms also on other planets? In the SenseLife project we developed a new instrument to detect traces of extraterrestrial microbial life. To validate it, we used Winogradsky columns as model to investigate, in the lab, the biosignatures of diverse microorganisms. This represents a preliminary step before detection in natural terrestrial and extraterrestrial environments.

TALK n°3