

- Faculté des sciences
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The basics of chemical ecology (3BL2211)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en biologie (*)	Cours: 7 dj	écrit: 2 h	4

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

Période d'enseignement:

- Semestre Printemps

Equipe enseignante:

Ted Turlings, Gregory Roeder, Gaetan Glauser and assistants

Objectifs:

The objective of this course is to provide you with a solid understanding of research in chemical ecology. The course will prepare you to conduct research projects in this and related fields.

Contenu:

During this course you will learn about the numerous intriguing roles of bioactive compounds in the interactions among organisms, from bacteria to humans. We will show spectacular examples of how chemicals mediate partner choice, mutualisms, resource location, sexual deceit and many other biological phenomena. As a common theme with the other courses within the module we will largely focus on plant defenses against insects. For these defenses plants rely on a complex arsenal of relatively small molecules, including terpenoids, alkaloids, phenylpropanoids, glucosinolates, and benzoxazinoids. These compounds can be mobilized or activated in response to herbivore attack. Herbivory also induces the emission of complex blends of volatiles that function as indirect defenses by deterring herbivores and attracting of natural enemies such as parasitoids and predators. These volatiles are also implicated in alerting neighboring plants or tissues to incoming attack. With the use of model plants (Arabidopsis, maize, cotton and tobacco) we will give you hands-on experience with research in this field. We will take you from chemical structure, biosynthesis, toxicology, to the adaptations in insects (perception, detoxification and sequestration) to deal with these compounds. We will further discuss the population level importance of defense chemicals in natural and agricultural ecosystems. We will show how the interactions can be studied and how the bioactive signals can be identified.

Forme de l'évaluation:

2 hour written exam, combined with Biosynthesis and function of secondary compounds

Documentation:

ppt files and relevant literature will be provided during the course.

Pré-requis:

A solid background in biology and basic chemistry

Forme de l'enseignement:

lectures combined with practicals

(*) Cette matière est combinée avec d'autres matières pour l'évaluation