BIOL 462, Ecological Plant Biochemistry

Instructor: Jörg Bohlmann, Professor, Michael Smith Laboratories,
Phone: 604-822-0282.

The course provides an introduction to functions of specialized plant chemicals and will guide a detailed analysis of well established and new concepts of plants interacting with other organisms, including "friends" and "foes". The one question that will guide us through this course can be phrased as follows:

How do sessile auxotrophs manage to survive among mobile heterotrophs?

The course includes, but is not restricted to, functions of plant chemicals that have traditionally been referred to as secondary metabolites in interactions of plants with other organisms. The chemicals covered in the course include alkaloids, terpenoids, phenolics, glucosinolates, cyanide releasing compounds, oxylpins, and various other organic compounds. The ecological interactions mediated by these chemicals include: Chemical communications between plants and insects; direct and indirect chemical defence against herbivores and microbial pathogens; as well as a plethora of other interactions between plants and other organisms. The biological activities of plant chemicals will be discussed. Biological activities of specialized plant chemicals are highly important for discovery of new drugs and the development of pharmaceuticals, as compounds for the food and fine-chemical industry, and for the development of new strategies for environmentally benign plant protection and the production bioproducts, biofuels and biomaterials.

Course Objectives: (**1**) Discover and understand principles of chemical interactions of plants with other organisms.

(**2**) Develop an appreciation and fundamental knowledge of specialized plant chemicals, their chemical diversity, biochemical pathways, evolutionary origins, and their ecological functions.

(**3**) Discover well known and possible new applications of plant chemicals based on their biological activities.