Level: bachelor

Course title: Ecological biochemistry (IB-506)

Status: elective

ECTS: 5

Requirements: none

Learning objectives:
To master the main concepts in ecological biochemistry, and to understand the role of primary and secondary biomolecules in plant and animal adaptations to environmental factors, in their interaction, communication and co-evolution.

Learning outcomes
Students should be able to: (1) demonstrate systematic understanding of biochemical basis of adaptation to environmental factors and of interactions between living organisms, (2) explain the relationship between biological activity of edible, medicinal and poisonous plants and ecological function of various secondary biomolecules, (3) explain the relationship between plant composition (and its variations) and environmental factors, (4) list the methods used in semiochemicals and allelochemicals investigation, (5) explain the methods for semiochemicals and allelochemicals analysis, and their use in pest control.

Syllabus
Theoretical instruction
Ecological biochemistry: concept and field of study. Biochemical basis of plant adaptation to environment. Detoxification mechanisms in plants. Biochemical basis of plant pollination. Plant toxins and their role in plant-animal interactions. Hormonal plant-animal interactions. Secondary biomolecules as phagoattractants and phagorepellents. Biochemical interactions between higher plants – allelopathy, communication. Plant antimicrobial protection – phytoalexins and phytoanticipins. Animal adaptation to environment. Biochemistry of animal defence chemicals. Biochemical agents in animal communications – pheromones. Experimental methods in ecological biochemistry.

Weekly teaching load				Other:
Lectures: 2	Exercises:	Other forms of teaching: 2	Student research:	