

Level: PhD				
Course title: Modelling of biophysical processes of environmental surfaces				
Status: elective				
ECTS: 15				
Requirements: appropriate master studies				
Learning objectives The course is designed to offer more detailed insight into biological, physical and chemical processes at biophysical environmental interfaces. This course includes introduction to mathematical formalism of non-linear dynamics.				
Learning outcomes After the course, PhD students should be able to: a) identify and analyze physical processes at environmental surfaces; b) make scientific analysis and interpretation of identified problem; and c) use scientific literature and prepare different forms of scientific reports and essays.				
Syllabus <i>Theoretical instruction</i> Introduction. Environmental surfaces-definition. Principles of parameterization. Shortwave and long wave radiation parameterization. Basics of soil physics. Mathematical introduction to heat and water transport of porous media. Soil water transport. Soil heat transport. Heat and water transport through canopy layer. Heat and water transfer through snow and solid materials. Overview of schemes for surface processes parameterization. Green house gasses parameterization in atmospheric surface layer. <i>Practical instruction</i> Parameterization of the selected processes. Comparison with the data observed. Student's work.				
Weekly teaching load				Other:
Lectures: 6	Exercises:	Other forms of teaching:	Student research: 4	