

Level: PhD				
Course title: Free Radicals in Plants and Oxidative Stress (DSB704)				
Status: elective				
ECTS: 15				
Requirements:				
Learning objectives: The aim of the course is to achieve integrated knowledge about the most important principles, theories and fundamental laws concerning action of toxic free radicals in biological systems and important role of antioxidative protection systems against the action of free radicals and induced oxidative stress.				
Learning outcomes At the end of the course, students should be able to use practical and theoretical knowledge in everyday life and for acquiring new knowledge. Practical knowledge and skills should include different methods for determination of antioxidant abilities and parameters of oxidative stress in plants. Obtained knowledge should help to improve students' understanding the problem of oxidative stress in plant tissue.				
Syllabus <i>Theoretical instruction</i> Introduction. Toxic oxygen and nitrogen species. Activated oxygen species. Reduced oxygen species. Biological effects of activated and reduced oxygen species. Lipid peroxidation. Toxic nitrogen species. Biological effect of nitrogen monoxide. Nitrogen monoxide in plants. Photosynthetic organisms and protection against oxygen radicals. Antioxidant enzymes. Nonenzymic natural antioxidants. Oxidative stress and xenobiotic influence on oxidative stress.				
Weekly teaching load				Other:
Lectures: 5	Exercises:	Other forms of teaching: -	Student research: 5	