Palacký University Olomouc, Faculty of Education, Department of Biology

Courses for international students for the academic year 2019/2020

KPŘ/YCBIO Essential Concepts of Cell Biology for Secondary School Teachers			
Number of ECTS credits:	5	**Course completion:**	Exam
Completion requirements:	80 % attendance	**Lecturer:**	Martin Jáč
Semester in which the course is taught:		both summer and winter	
Description:			
The course will summarize essential concepts of cell biology, including following topics: chemical components of the cell (sugars, lipids, proteins, nucleic acids), structure of prokaryotic and eukaryotic cells (structure and function of cell organelles), overview of cellular metabolic pathways (cellular respiration, fermentation, photosynthesis), cell communication and signal transduction; gene expression at the molecular level (DNA replication, transcription, translation, gene regulation), eukaryotic cell cycle, cell division: mitosis and meiosis. Based on the Model of Educational Reconstruction, teaching and learning approaches on the cell concept (including the design of teaching and learning environments) for secondary school level will be discussed throughout the whole course.			

KPŘ/YMBER Methods in Biology Education Research			
Number of ECTS credits:	5	**Course completion:**	Exam
Completion requirements:	80 % attendance	**Lecturer:**	Martin Jáč
Semester in which the course is taught:		both summer and winter	
Description:			
The course will cover fundamental research methods used in Biology Education Research (BER) including: planning research project, quantitative/qualitative/mixed experimental design, sampling, validity and reliability, tests (including conceptual tests and inventories) and questionnaires, interviews, observation, case studies, data analysis, ethical aspects of biology education research. During the course, scientific and methodological papers from different areas of Biology Education Research will be discussed. Students will also receive systematic feedback during their work on master's (or Ph.D.) theses focused on relevant scientific problem within biology education.			

KPŘ/YBPA Basics of Palaeoecology			
Number of ECTS credits:	5	**Course completion:**	Exam
Completion requirements:	80 % attendance	**Lecturer:**	Šárka Hladilová
Semester in which the course is taught:		both summer and winter	
Description:			
At the end of the course the students should be oriented in the basics of palaeoecology, its relations to ecology, and in the data on palaeoenvironments, their changes and mutual interactions among organisms detectable from the rocks and fossils. Topics: Definition of palaeoecology, its relations to ecology. Populations/palaeopopulations, biocoenoses /palaeobiocoenoses, ecosystems/palaeoecosystems. Field and laboratory methods of palaeoecological research. Interpretations of palaeoecological record.			

KPŘ/YFPLM Field Practice in Landscape Management and Nature Conservation			
Number of ECTS credits:	4	**Course completion:**	Exam
Completion requirements:	80 % attendance	**Lecturer:**	Jitka Málková
Semester in which the course is taught:		summer	
Description:			
The course will comprise two day-long field trips to protected areas in the Litovelské Pomoraví Protected Landscape Area (PLA) with various biotope types. The territory is a Special Area of Conservation under NATURA 2000 and under the Ramsar Convention. Day 1: The Vrapač National Nature Reserve (NNR) and the Hejtmanka Nature Reserve (NR) in the vicinity of the River Morava, where the characteristics, threats, and management of hygrophilous forests will be demonstrated, and the Templ Natural Monument (NM) illustrating the issues of meadow regeneration. Day 2: The Třesín NR near the Mladeč Caves with a nature trail, showing the mesophilic biotopes (oak-hornbeam and beech forests), scree forests on the slopes, as well as marshes, karstic springs, and caves, complemented by showing undesirable interventions in the woodlands and non-forest sites. Organisms, especially environmentally valuable ones, will be demonstrated during the field trips. Moreover, undesirable species and the methods of their elimination will be brought forward. Finally, the methods of mapping of the landscape, populations, and species (in particular, NATURA 2000) will be outlined.			

KPŘ/YINZO Invertebrate zoology			
Number of ECTS credits:	5	**Course completion:**	Exam
Completion requirements:	80 % attendance	**Lecturer:**	Milada Bocáková
Semester in which the course is taught:		both summer and winter	
Description:			

At the end of the course students should be able to:

- to explain and compare contemporary hypotheses on animal phylogeny;
- to characterize individual groups of "invertebrates", their body plan, distribution, ecology, biology and economic importance.

Topics: The history of animal classification and contemporary concepts of animal phylogeny. Basic body plans of "invertebrates". Characteristics, distribution, biology, ecology and economical importance of individual groups: 1. Amitochondriate Excavata, 2. Euglenozoa, 3. Alveolata (Ciliata, Dinoflagellata, Apicomplexa), 4. Cercozoa (Foraminifera, Radiolaria, Heliozoa),), 5. Amoebozoa, 6. Animalia (Choanoflagellata, Metazoa), the position within Opisthokonta. The main lineages of animals and the position of the individual “invertebrate” phyla [Porifera, Placozoa, Cnidaria, Myxozoa, Ctenophora; Bilateria - Acoelomorpha, Mesozoa, Syndermata, Gastrotricha; Ecdysozoa (Cephalorhyncha, Nematoda, Nematomorpha, Panarthropoda: Onychophora, Tardigrada, Arthropoda), Lophotrochozoa (Platyhelminthes; Lophophorata: Brachiopoda, Phoronida, Ectoprocta; Mollusca, Entoprocta, Nemertea, Annelida), Deuterostomia pars (Echinodermata, Hemichordata)].