

**Topics for the 2024 diploma exam**  
**Field of study: Global change biology**  
**Faculty of Biological and Veterinary Sciences**

Name of the item	Topics
Animal and Plant Ecophysiology	1.Plant plasticity - the nature of the phenomenon 2.Adaptation vs. Acclimation 3.Ecophysiology parameters 4.Practical use of knowledge in the field of plant ecophysiology 5. The effect of changes in abiotic conditions on physiology of organisms 6. The concept of ecological niche and its relationship with changes in abiotic conditions
Biostatistics	1.Probability 2. Central limit theorem 3. Data distribution, parametric and non-parametric tests (T-test, F-test, chi2, One-way ANOVA, Two-way ANOVA), Pearson correlation coefficient 4. Simple and multiple linear regression
Ecosystem Functioning	1. The structure and functioning of the ecosystem 2. The human impact on freshwater ecosystems.
Ecology of Populations and Communities	1. Life in the city: urban habitats as locations for wildlife 2. Inter- and intraspecific communication in animals 3. Prey-predator relationships
Genetics and Evolution	1. Molecular mechanisms in evolution (DNA replication, mutations and DNA repair, homologous recombination, horizontal gene transfer) 2. Gene inheritance 3. Population genetics
Multivariate analysis	1. Examples of multivariate methods applications in ecological studies 2. The types of ordination methods and specific recommendations for their applications. 3. Examples of different types of ecosystem services. 4. Natural capital and measures of its value.
Dynamic biogeography	1. What type of information is contained in the species - area relationship and how is it used in biogeography and conservation? 2. What is the importance of temperature and precipitation distribution in shaping the species distribution ranges along the latitude gradient? 3. Biological invasions: a serious threat to global biodiversity or nothing to worry about? 4. Valorization of ecosystem quality 5.Climate change and its impact on Earth's biodiversity
Environmental impacts of genetically modified organisms	1. Methods of generation and identification of genetically modified organisms; 2. Application of genetically modified organisms in industry, agriculture, and medicine; 3. Possible threads of genetically modified organisms to humans, animals, and the environment; 4. Legal acts related to GMO
European legal regulations in environmental protection	The development of European environmental law; General principles of EU law in relation to environmental protection; EU and environment: actors, instruments and decision-making procedures; Horizontal measures (right to a clean environment, public participation in environmental matters, environmental liability); Legislation on environmental impact assessment; Legislation on the conservation of Nature (Wild Birds Directive, Habitats Directive, CITES Regulation); Legislation on waste (Waste Framework Directive, landfill of waste, shipment of waste); Legislation on Integrated Product Policy (Eco-label Regulation, EMAS Regulation, Ecodesign Directive)