



Syllabus

Term: 2026/27/1 **Subject name:** Introduction to Pedology **Subject code:** ONFOL1-2601

Unit (Unit code) Institute of Geography and Earth Sciences (FOLDRAJZ)

Lecturer responsible for the course: Dr. CZIGÁNY Szabolcs

Requirement: Term mark

Classes per week : 1/0/2/0

Classes per term: 13/0/26/0

Purpose of education:

Course objectives and learning outcomes: 1. To provide an understanding of the physical properties of soils 2. To provide a quantitative discussion of static and dynamic soil physical, chemical and biological processes 3. To apply soil physical and geographical concepts to contemporary problems in soil and water resources management The general goal of the course is to provide an insight into the complex zonal knowledge on climate-vegetation-fauna-soil relations and soil management, which may generate a sound foundation for the subsequent global geographical studies. Students will also be expected to understand the basic models and nexus of soil science and pedology, and the role of soils on agriculture, crop production and global economy, as well as human welfare. Students who successfully complete the course will have an understanding of the methodological and theoretical basis of pedology and soil sciences. On successful completion of the course students are expected to be able to understand the basic processes in the pedosphere. They also will be able to collect relevant data to analyse and identify the role of soils, soil physical, chemical and biological processes on global systems, including human society and economy. They also will be able to critically evaluate and judge the problems and issues related to soil health, soil contamination and the general condition of soils as integral parts of the global ecosystems. They also work independently on soil-related ecological and interdisciplinary problems and present them to decision makers and stakeholders. They will be able to assess and comprehend data and literature related to soil science, pedology and ecosystem analysis.

Contents:

Weekly class schedule of the lecture: Week 1: Definition of soil; Week 2: Pedogenesis, soil formation; Week 3: Weathering; Week 4: Organic matter in the soils; Week 5: Soil physical properties, soil moisture; Week 6: The nutrient cycles; Week 7: Midterm exam; Week 8: Soil-dwelling fauna, life in soils; Week 9: Soil taxonomy 1; Week 10: Soil taxonomy 2; Week 11: Soil taxonomy 3; Week 12: Soil taxonomy 4; Week 13: Soil taxonomy 5.

Weekly schedule for the lab exercises: Week 1: Introduction, lab protocol; Week 2: Particle size analysis: Sieving; Week 4: Particle size analysis: The hydrometer method; Week 5: Sphericity of gravels and pebbles; Week 6 (October 17): Measurement of bulk and specific densities on undisturbed soil samples; Week 7: Particle size analysis: Pipet method; Week 8: Measurement of capillary rise; Week 9: Determination of particle size with laser scattering; Week 10: Determination of plasticity indices for soils; Week 11: Determination of the carbonate content of soils; Week 12: Determination of soil structure; Week 13: Determination of organic



Syllabus

Term: 2026/27/1

Subject name: Introduction to Pedology

Subject code: ONFOL1-2601

Contents:

matter content of soils.

Field trip: Second Friday of October (4x45 minutes, weather permitted); Location: Szentmiklós site of the Institute of Viticulture and Oenology

System of examining and valuation:

Grading policy

Midterm exam (written): 30%, final exam (written): 35% (final exam covers the topic delivered during the entire semester, weeks 1 to 13), lab reports 25%, field trip participation and field report: 10%

Grades are determined based on the following scale:

0-50%: 1; 50.01-60%: 2; 60.01-75%: 3; 75.01-85%: 4; 85% and above 5.

Bibliography:

Reading assignments: Markus Flury: Soil Physics laboratory exercises (uploaded to NMS) Miller, R. W. and Gardiner, T. D.: Soils in our Environment. Prentice Hall, Upper Saddle river, NJ

Bibliography: