

Forest Soil

Prof.ssa Sara Marinari 3 cfu – II semestre

COURSE DESCRIPTION & OBJECTIVES:

The course provides students with an understanding of forest soils and their fundamental differences with other soil types. Students are provided practical skills in evaluating forest plantation soils and planning management interventions.

Expected learning outcomes:

KNOWLEDGE AND UNDERSTANDING ABILITY

Conduct basic field analysis of forest soils, including description of soil profiles and landforms, site classification. Understand the fundamental properties and processes of forest soils and their relationships to tree growth/site productivity.

Know the effects of forest management practices on forest soil properties and processes and know how to utilize silvicultural techniques to influence soil properties and processes to enhance productivity and sustainability.

ABILITY TO APPLY KNOWLEDGE AND UNDERSTANDING

Ability to recognize different forest soils and the correct management to be applied. Pedological investigation to establish the connection between the different soil types and the forest vegetation. Application of pedological survey methodologies: identification of homogeneous areas for the factors of pedogenesis and analysis and description of a soil profile.

JUDGMENT AUTONOMY

Being able to interpret the soil processes occurring in a forest ecosystem. Ability to evaluate a forest soil according to the features of the environment. Ability to evaluate a forest soil in relation to the type of management.

LEARNING ABILITY

Being able to describe topics related to forest soils in written and / or oral form. This skill will be developed through the active involvement of students through oral discussions in the classroom and in the field on specific topics related to the course.

PROGRAMME

1. History and management forest soils(2 hours)
2. Composition of forest soils: Soil Formation and minerals (2 hours)
3. Composition of forest soils: Soil organic matter (2 hours)
4. Composition of forest soils: Soil structure, water and pores (2 hours)
5. Life in forest soils (2 hours)
6. Forest biogeochemistry (2 hours)
7. Sampling forestsoil across space and time (2 hours)
8. Influence of tree species, fire and site preparation on forest soils (2 hours)
9. Forest soil and nutrition management (2 hours)
10. Managing forest soil for carbon sequestration (2 hours)
11. Field practice in a forest in the Viterbo area: soil description and site evaluation (4 hours)