

Soil Physics | Sciences du Sol 2024 (ENV-222)



Image Credit: Oh_Apisit39/Shutterstock.com

Teaching staff

Coodinator: Prof. Gabriele Manoli, ENAC IA URBES, gabriele.manoli@epfl.ch

Computer Lab: Guo-Shiuan Lin, ENAC IA URBES, guo-shiuan.lin@epfl.ch

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Course Schedule 2024 (Soil Physics – Manoli)

Lecture	Week	Date	Lecture Type	Duration	Topic	Lecturer
1	S.7	13 Oct	Computer Lab (*)	1h	Introduction	Lin
		15 Oct	Lecture	2h	Introduction + soil phases (solid, liquid, gaseous)	Manoli
		17 Oct	Exercises	2h	Exercises Week 1	Jetzer+Thome
-	-	Break				
2	S.8	27 Oct	Computer Lab (*)	2h	Assignment 1 (Pedotransfer functions)	Lin
		29 Oct	Lecture	2h	Soil water I: saturation, water potential, measurements	Manoli
		31 Oct	Exercises	2h	Exercises Week 2	Jetzer+Thome
3	S.9	3 Nov	Computer Lab (*)	2h	Assignment 2 (Water retention curves, curve fitting)	Lin
		5 Nov	Lecture	2h	Soil Water II: water potential with depth (sat/unsat), retention curves	Manoli
		7 Nov	Exercises	2h	Exercises Week 3	Jetzer+Thome
4	S.10	10 Nov	Computer Lab (*)	2h	Assignment 3 (1D infiltration model)	Lin
		12 Nov	Lecture	2h	Water flow I: Darcy's law, saturated flow	Manoli

		14 Nov	Exercises	2h	Exercises Week 4	Jetzer+Thome
5	S.11	17 Nov	Computer Lab (*)	/	Q&A (optional)	Lin
		19 Nov	Lecture	2h	Water flow II: unsaturated flow, Richards equation	Manoli
		21 Nov	Exercises	2h	Exercises Week 5	Jetzer+Thome
6	S.12	24 Nov	Computer Lab (*)	/	Q&A (optional)	Lin
		26 Nov	Lecture	2h	Soil-Plant-Atmosphere interactions I: water balance, infiltration, evapotranspiration	Manoli
		28 Nov	Exercises	2h	Exercises Week 6	Jetzer+Thome
7	S.13	1 Dec	Computer Lab (*)	/	Q&A (optional)	-
		3 Dec	Lecture	2h	Soil-Plant-Atmosphere interactions II + Solute transport (if time allows)	Manoli
		5 Dec	Exercises	2h	Exercises Week 7 + Report submission	Jetzer+Thome

(*) Bring your laptop

Rooms

- **Computer Lab (Mondays):** CE 1 104
- **Lectures (Wednesdays):** GR B3 30
- **Exercises (Fridays):** MED 2 2423

Assessment (Soil Physics part - Manoli)

- **Exam (35%):** open and/or multiple choice questions + exercises on the material covered during the course.
- **Group report (15%):** Write a short report on the modeling activities carried out during the Computer Laboratory sessions (see assignments and project description in Moodle).