

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



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### Teaching staff

Coordinator: Prof. Gabriele Manoli, ENAC IA URBES, [gabriele.manoli@epfl.ch](mailto:gabriele.manoli@epfl.ch)

Computer Lab: Guo-Shiuan Lin, ENAC IA URBES, [guo-shiuan.lin@epfl.ch](mailto:guo-shiuan.lin@epfl.ch)

Assistants: Gil Thomas ([thomas.gil@epfl.ch](mailto:thomas.gil@epfl.ch)), Thome Matteo ([matteo.thome@epfl.ch](mailto:matteo.thome@epfl.ch))

### Course Schedule 2024 (Soil Physics – Manoli)

Lecture	Week	Date	Lecture Type	Duration	Topic	Lecturer
1	S.6	14 Oct	Computer Lab (*)	1h	Introduction	Lin
		16 Oct	Lecture	2h	Introduction + soil phases (solid, liquid, gaseous)	Manoli
		18 Oct	Exercises	2h	Exercises Week 1	Gil+Thome
-	-	Break				
2	S.7	28 Oct	Computer Lab (*)	2h	Assignment 1 (Pedotransfer functions)	Lin
		30 Oct	Lecture	2h	Soil water I: saturation, water potential, measurements	Manoli
		1 Nov	Exercises	2h	Exercises Week 2	Gil+Thome
3	S.8	4 Nov	Computer Lab (*)	2h	Assignment 2 (Water retention curves, curve fitting)	Lin
		6 Nov	Lecture	2h	Soil Water II: water potential with depth (sat/unsat), retention curves	Manoli
		8 Nov	Exercises	2h	Exercises Week 3	Gil+Thome
4	S.9	11 Nov	Computer Lab (*)	2h	Assignment 3 (1D infiltration model)	Lin
		13 Nov	Lecture	2h	Water flow I: Darcy's law, saturated flow	Manoli
		15 Nov	Exercises	2h	Exercises Week 4	Gil+Thome

5	S.10	18 Nov	Computer Lab (*)	/	Q&A (optional)	Lin
		20 Nov	Lecture	2h	Water flow II: unsaturated flow, Richards equation	Manoli
		22 Nov	Exercises	2h	Exercises Week 5	Gil+Thome
6	S.11	25 Nov	Computer Lab (*)	/	Q&A (optional)	Lin
		27 Nov	Lecture	2h	Soil-Plant-Atmosphere interactions I: water balance, infiltration, evapotranspiration	Manoli
		29 Nov	Exercises	2h	Exercises Week 6	Gil+Thome
7	S.12	2 Dec	Computer Lab (*)	/	Q&A (optional)	-
		4 Dec	Lecture	2h	Soil-Plant-Atmosphere interactions II + Solute transport (if time allows)	Manoli
		6 Dec	Exercises	2h	Exercises Week 7 + Report submission	Gil+Thome

(\*) Bring your laptop

## Rooms

- **Computer Lab (Mondays):** CE1101
- **Lectures (Wednesdays):** GR B3 30
- **Exercises (Fridays):** GC B3 31

## 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).