**Course book:**

Principles of Terrestrial Ecosystem Ecology (2011). Chapin F.S. III, P.A. Matson, and P.M. Vitousek. Springer Science + Business Media, LLC, New York.

**Modules – reading list:**

***Introduction to forest ecosystem ecology***

• Course book chapter 1

***Carbon***

• Course book: chapters 5-7

• Additional papers:

Koch et al 2004 The limits of tree height, Nature, 428:851-854.

Bonan, G. B., 2008 Forests and climate change: Forcings, Feedbacks, and the Climate Benefits of Forests, Science 320:1444-1449.

Wei et al., 2014 3-PG simulations of young ponderosa pine plantations under varied management intensity: Why do they grow so differently? Forest Ecology and Management, 313:69-81.

Janssens et al., 2001, 7, 269-278 Productivity overshadows temperature in determining soil and ecosystem respiration across European forests, Global Change Biology, 7:269-278.

Berg, B., 2018, Decomposing litter; limit values; humus accumulation, locally and regionally, Applied Soil Ecology, pp 494-508

***Water***

• Course book chapters 4, 5 (p.129-133), 7 (p. 217-223), 9 (p. 263-266)

• Additional papers:

Ellison D. et al. 2017. Trees, forests and water: Cool insights for a hot world. Global Environmental Change 43: 51-61

Evaristo J. et al. 2015. Global separation of plant transpiration from groundwater and streamflow. Nature 525: 91-94

Allen G.H. and Pavelsky T. M. 2018. Global extent of rivers and streams. Science 361: 585-588.

***Cycling of nutrients, hydrogen ions and element biogeochemistry***

• Course book chapter 9 (197-220)

• Additional papers:

Van Breemen et al., 1983. Acidification and alkalinization of soils. Plant and soil 75:283-308.

A.J.B. Zehnder and B.H. Svensson, 1986, Life without oxygen: what can and what cannot? Experimentia 42: 1197-1205

***Microbes, soil fauna, and soil food webs***

• Course book chapters: 7, 8, 9

• Additional papers:

Crowther et al. (2019). The global soil community and its influence on biogeochemistry. Science 365, DOI: 10.1126/science.aav0550

Bennett et al (2017). Plant-soil feedbacks and mycorrhizal type influence temperate forest population dynamics. Science 355: 181-184.

Thakur & Geisen (2019). Trophic Regulations of the Soil Microbiome. Trends in Microbiology 27: 771-780.

Potapov (2021). Multifunctionality of belowground food webs: 1 resource, size and spatial energy channels. bioRxiv preprint doi: <https://doi.org/10.1101/2021.06.06.447267>.

***The role of biodiversity in ecosystem functioning***

• Course book chapters: 8, 10, 11, 13

• Additional papers:

Richardson, J. S., & Sato, T. (2015). Resource subsidy flows across freshwater-terrestrial boundaries and influence on processes linking adjacent ecosystems. Ecohydrology, 415(April 2014), 406–415. https://doi.org/10.1002/eco.1488

Wardle et al. (2004). Ecological linkages between aboveground and belowground biota. Science 304: 1629-1633.

Boonstra et al. 2016. Why do the boreal forest ecosystems of northwestern Europe differ from those of Western North America? Bioscience 66: 722-734.

Hooper et al. 2005. Effects of biodiversity on ecosystem functioning: A consensus of current knowledge. Ecological monographs 75: 3-35.

***Global perspectives of forest ecosystems***

• Course book chapters 14

• Additional papers:

Gamfeldt, L., Snäll, T., Bagchi, R., Jonsson, M., Gustafsson, L., Kjellander, P., et al. (2013). Higher levels of multiple ecosystem services are found in forests with more tree species. Nature Communications, 4.

Nilsson, C., Polvi, L. E., Gardeström, J., Hasselquist, E. M., Lind, L., & Sarneel, J. M. (2015). Riparian and in-stream restoration of boreal streams and rivers: success or failure? Ecohydrology, 8, 753–764. https://doi.org/10.1002/eco.1480

Gauthier et al. (2015). Boreal forest health and global change. 349: 819-822.

Ceccherini et al. (2020). Abrupt increase in harvested forest area over Europe after 2015. Nature 583, pages72–77. https://doi.org/10.1038/s41586-020-2438-y